SECTION 000100 PROJECT MANUAL COVER NEWBURGH ENLARGED CENTRAL SCHOOL DISTRICT PHASE 5: 2019 CAPITAL IMPROVEMENT PROJECT 400 OLD FORGE HILL ROAD NEW WINDSOR, NY 12553

CPL PROJECT NO.:13940.20

A. DOCUMENT DATE: SEPTEMBER 27, 2021 NEW YORK STATE EDUCATION DEPARTMENT CONTROL NUMBERS: VAILS GATE ELEMENTARY SCHOOL SED# 44-16-00-01-0-018-009

Volume 1: Division 00 through 12

DESIGN PROFESSIONAL'S
CERTIFICATIONTHE UNDERSIGNED
CERTIFIES THAT, TO THE BEST OF HIS OR
HER KNOWLEDGE, INFORMATION AND
BELIEF, THAT THE "DESIGN CONFORMS TO
ALL APPLICABLE PROVISIONS OF THE NEW
YORK STATE UNIFORM FIRE PREVENTION
CODE AND BUILDING CODE, NEW YORK
STATE ENERGY CONSERVATION CODE AND
THE BUILDING STANDARDS OF THE NEW
YORK STATE EDUCATION DEPARTMENT.
AND THAT THE "WORK WILL INVOLVE
KNOWN OR SUSPECTED ACBM AND WILL BE
DONE IN ACCORDANCE WITH INDUSTRIAL
CODE RULE #56"

ARCHITECT/ENGINEER	OWNER	CONSTRUCTION MANAGER
CPL	NEWBURGH ENLARGED CITY SCHOOL DISTRICT	THE PALOMBO GROUP INC.
50 FRONT STREET, SUITE 202	124 GRAND STREET	195 FRONT STREET, FIRST FLOOR
NEWBURGH, NY 12550	NEWBURGH, NY 12550	NEWBURGH, NY 12550
845.567.6700 - PHONE	845.563.3400 - PHONE	845.594.5328 - PHONE

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SECTION 001113 ADVERTISEMENT FOR BIDS

PROJECT INFORMATION

1.01 NOTICE TO BIDDERS: QUALIFIED BIDDERS MAY SUBMIT BIDS FOR PROJECT AS DESCRIBED IN THIS DOCUMENT. SUBMIT BIDS ACCORDING TO THE INSTRUCTIONS TO BIDDERS.

A. Regulatory Requirements: shall govern submittal, opening, and award of bids.

1.02 PROJECT IDENTIFICATION:

- A. Project Location:
- 1. VAILS GATE ELEMENTARY, 400 OLD FORGE ROAD. NEW WINDSOR, NY 12533

1.03 OWNER: .

A. Owner's Representative: ROGER RAMJUG, CAPITAL PROJECTS ADMINISTRATOR, 124 GRAND STREET, NEWBURGH, NY 12550.

1.04 ARCHITECT:

A. CPL, 50 FRONT STREET, NEWBURGH, NY 12550

1.05 CONSTRUCTION MANAGER:

A. THE PALOMBO GROUP, PO BOX 4976, 22 NOXON ST, POUGHKEEPSIE, NY 12601 & 195 FRONT STREET, FIRST FLOOR, NEWBURGH, NY 12550.

1.06 PROJECT DESCRIPTION: PROJECT CONSISTS OF:

A. New Classroom Addition and Renovations at existing building

1.07 CONTRUCTION CONTRACT: BIDS WILL BE RECEIVED FOR THE FOLLOWING WORK

- A. Multiple Contract Project consisting of the following prime contracts:
 - 1. General Construction
 - 2. Mechanical Construction
 - 3. Plumbing Construction
 - 4. Electrical Construction
 - 5. Site Work Construction

BID SUBMITTAL AND OPENING

- 2.01 OWNER WILL RECEIVE SEALED LUMP SUM BIDS UNTIL THE BID TIME AND DATE AT THE LOCATION GIVEN BELOW. OWNER WILL CONSIDER BIDS PREPARED IN COMPLIANCE WITH THE INSTRUCTIONS TO BIDDERS ISSUED BY OWNER, AND DELIVERED AS FOLLOWS:
 - A. Bid Date: OCTOBER 26, 2021.
 - B. Bid Time: 3:00 p.m. , local time.
 - C. Location: 124 GRAND STREET, NEWBURGH, NY 12550 .

2.02 BIDS WILL BE THEREAFTER PUBLICLY OPENED AND READ ALOUD. BIDS RECEIVED AFTER THAT TIME WILL NOT BE ACCEPTED.

BID SECURITY

3.01 BID SECURITY

1. Bid security shall be submitted with each bid in the amount of [5] percent of the bid amount. No bids may be withdrawn for a period of 45 days after opening of bids. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.

PREBID MEETING

4.01 PREBID MEETING:

 A Prebid meeting/WALK THROUGH for all bidders will be held on October 12, 2021, STARTING at 3:00 p.m., local time at 400 OLD FORGE ROAD, WINDSOR, NY 12533.
 <u>ATTENDANCE BY BIDDERS IS STRONGLY RECOMMENDED</u>, BUT NOT REQUIRED, FOR SUBMITTING A BID. PROSPECTIVE BIDDERS MAY VISIT THE SITES DURING

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BUSINESS HOURS BY APPOINTMENT ONLY. CONTACT MR. BILL DEVINE (THE PALOMBO GROUP) AT (845) 554-7631.

DOCUMENTS

- 5.01 PRINTED PROCUREMENT AND CONTRACTING DOCUMENTS: DOCUMENTS WILL BE PROVIDED TO PRIME BIDDERS ONLY; ONLY COMPLETE SETS OF DOCUMENTS WILL BE ISSUED.
 - A. Complete sets of Bidding Documents, Drawings and Specifications, may be obtained from Rev, 330 Route 17A, Suite #2, Goshen, New York 10924 Tel: 1-877-272-0216, for a refundable reproduction fee of \$100.00 for each combined set of documents. Checks or money orders shall be made payable to 'Newburgh Enlarged City School District'. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs. All bid addenda will be transmitted to registered plan holders via email and will be available at www.cplplanroom.com. Plan holders who have paid for hard copies of the bid documents will need to make the determination if hard copies of the addenda are required for their use and coordinate directly with the printer for hard copies of addenda to be issued. There will be no charge for registered plan holders to obtain hard copies of the bid addenda.
 - B. A Bidder, upon 1) making the deposit required for the Bid Documents, 2) submitting a Proposal accompanied by a certified check or other security in accordance with the requirements contained in the plans and specifications and public advertisement for bids, and 3) returning the plans and specifications used by such Bidder in good condition within thirty (30) days following the award of the Contract, or rejection of the Bid, shall have returned to them the full amount of the deposit for one copy of the plans and specifications

5.02 ONLINE PROCUREMENT AND CONTRACTING DOCUMENTS:

A. Complete digital sets of Bidding Documents, drawings and specifications, may be obtained online as a download at www.cplplanroom.com under 'public projects' for a non-refundable reproduction fee of \$49.00.

5.03 VIEWING PROCUREMENT AND CONTRACTING DOCUMENTS: EXAMINE ON OR AFTER AUGUST 30, 2021 AT THE LOCATIONS BELOW:

- A. www.cplplanroom.com.
- B. Eastern Contractors Association, Inc., 6 Airline Drive, Albany, NY 12205-1095, 518-869-0961
- C. McGraw Hill Construction (Dodge): 71 Fuller Road, Albany, NY 12205, phone:1-800-393-6343, fax: 518-725-4733, e-mail: Support@construction.com
- D. Newburgh Enlarged City School District, Board of Education Building, 124 Grand Street, Newburgh, NY 12550
- E. Construction Contractors Association of the Hudson Valley: 330 Meadow Avenue, Newburgh NY 12550, phone: (845)562-4280, email: info@ccahv.com
- F. The Palombo Group: 195 Front Street, First Floor, Newburgh, NY 12250.

BIDDER'S QUALIFICATIONS

6.01 ATTENTION OF THE BIDDER

1. Attention of the Bidder is particularly called to the Owner's sales tax exemption, the requirements as to conditions of employment to be observed, and the minimum wage rates to be paid under the Contract. In addition, the Bidding Documents contain detailed requirements for the qualification of Bidders. These include, among other things, rigid bonding and insurance requirements, financial statements, bank references, lists of lawsuits, arbitrations or other proceedings in which the Bidder has been named as a party, a statement of surety's intent to issue Performance and Payment Bonds, and a description of other projects of similar size and scope completed by the Bidder. The Owner reserves the right to waive any and all informalities in, or to reject, any or all bids. The Owner further reserves its right to disqualify Bidders for any material failure to comply with the "INSTRUCTIONS TO BIDDERS".

13940.20 ADVERTISEMENT FOR BIDS 001113 - 3	NEWBURGH ECSD	Phase 5: 20	Phase 5: 2019 Capital Improvement Project	
	13940.20	ADVERTISEMENT FOR BIDS	001113 - 3	

6.02 THIS CONTRACT IS SUBJECT TO A PROJECT LABOR AGREEMENT

- 1. This Contract is subject to a Project Labor Agreement ("PLA") entered into between the Newburgh Enlarged City School District ("Owner") and the Hudson Valley Building and Construction Trades Council, on behalf of itself and its affiliated Local Unions, and the signatory Local Unions on behalf of themselves and their members. By submitting a Bid, the Contractor agrees that the PLA is binding on the Contractor and Subcontractors of all tiers. Please refer to the Bid Documents for further information. The Bidder to be awarded the Contract, as well as the Bidder's subcontractors, will be required to execute a "Letter of Assent" prior to the award. Failure to execute the Letter of Assent will result in the rejection of the Bidder.
- 1. The Bidder is advised to review the PLA and the Letter of Assent, all of which are attached to AIA Document A232-2009 General Conditions of the Contract for Construction.

NOTIFICATION

7.01 THIS ADVERTISEMENT FOR BIDS DOCUMENT IS ISSUED BY NEWBURGH ENLARGED CITY SCHOOL DISTRICT, 124 GRAND STREET, NEWBURGH, NY 12550.

END OF SECTION 001113

NEWBURGH ECSD		Phase 3: 2019 Capital Improvement Project	
13940.18	ADVERTISEME	ENT FOR BIDS	001113 - 1

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13740.20

INSTRUCTIONS TO BIDDERS COVER

002000 - 1

SECTION 002000 INSTRUCTIONS TO BIDDERS COVER

PART 1 GENERAL

1.01 SUMMARY

- A. Attached is AIA Document A701-2018, Instructions to Bidders.
 - 1. AIA Document A701-2018 defines the conditions affecting award of contract and procedures with which Bidders must comply.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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AIA Document A701 – 2018

Instructions to Bidders

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

Newburgh Enlarged City School District Phase 5: 2019 Capital Improvements Project Vails Gate Elementary School SED # 44-16-00-01-0-018-009

THE OWNER: (Name, legal status, address, and other information)

Newburgh Enlarged City School District 124 Grand St. Newburgh, NY 12550

THE ARCHITECT:

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

CPL Architects, Engineers, Landscape Architect and Surveyor, D.P.C. d/b/a CPL 50 Front Street Newburgh, NY 12550

TABLE OF ARTICLES

- 1 DEFINITIONS
- 2 BIDDER'S REPRESENTATIONS
- 3 BIDDING DOCUMENTS
- 4 BIDDING PROCEDURES
- 5 CONSIDERATION OF BIDS
- 6 POST-BID INFORMATION
- 7 PERFORMANCE BOND AND PAYMENT BOND
- 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

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.

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

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

ARTICLE 1 DEFINITIONS

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

§ 1.2 Definitions set forth in the General and Supplementary (if required) Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

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

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

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

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

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

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

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

ARTICLE 2 BIDDER'S REPRESENTATIONS

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

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders

(Paragraphs deleted)

may obtain Bidding Documents as designated in the Advertisement or Invitation to Bid, for the deposit sum and method stated therein.

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within thirty (30) days following the award of the Contract or rejection of the Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award

may retain the paper Bidding Documents, and the Bidder's deposit will be refunded. Good condition as used in this section means that the Bidding Documents must be returned bound as issued, legible, and containing only the markings necessary for bidding purposes.

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

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

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

§ 3.2 Modification or Interpretation of Bidding Documents

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

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing via email and shall be received by the Architect at least seven working days prior to the date for receipt of Bids, as follows:

Perry Crosson, pcrosson@cplteam.com

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

§ 3.2.4 In the absence of an interpretation, correction or change, should the Drawings disagree in themselves or with the Specifications, the better quality, the costlier or the greater quantity of work or materials shall be estimated upon, and unless otherwise ordered, shall be furnished.

§ 3.2.5 Communications regarding the Bidding Documents shall be directed to; Ingrid Martinez, Telephone Number: (800) 274-9000

§ 3.2.6 EQUIVALENCY

§ 3.2.6.1 In the Specifications, if two or more kinds, types, brands, or manufacturers or materials are named, they shall be regarded as the required standard of quality, and are presumed to be equal. The Contractor may select one of these items or, if the Contractor desires to use any kind, type, brand, manufacturer or material other than those named in the Specification, he shall indicate in writing to the Architect and Owner, and prior to the award of Contract, what kind, type, brand or manufacturer is included in the Base Bid for the specified item. Refer to Specification 012519 Equivalents for Equivalent Certification Form.

§ 3.3 Substitutions

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

§ 3.3.2 Substitution Process

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

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

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a

statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

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

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

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents. The procedure for review and approval of Substitutions is set forth in the § 3.4.2 of the General and Supplementary (if required) Conditions of the Contract and in the General Requirements (Division 1 of the Specifications).

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding (Paragraphs deleted)

Documents through the method stated in the Advertisement to Bid.

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

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

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

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

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

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

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

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

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

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

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

(Paragraph deleted)
§ 4.2 Bid Security
§ 4.2.1 Each Bid shall be accompanied by the following bid security:
(Paragraphs deleted)
Bid Security of not less than five percent (5%) of the amount of the Bid, in the form of a Bid Bond or a Certified Check made payable to the Owner.

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§ 4.2.2 Except as stated under § 4.4.3, the Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid, with the understanding that the Bid Security shall guarantee that the Bidder will not withdraw its Bid for a period of forty-five (45) days after the scheduled closing time for the receipt of Bids, and that if its Bid is accepted, the Bidder will enter into a formal contract with the Owner in accordance with the terms stated in the Bid and will furnish any required performance and payment bonds at the time required. In the event of the withdrawal of said Bid within the forty-five (45) day period or the failure of the successful Bidder to enter into the Contract with the Owner or the failure of the successful Bidder to furnish required performance and payment bonds at the time required, the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty, which represents the damage the Owner incurred as a result of the Bidder's default.

In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

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

§ 4.2.4 The Bid Securities shall be returned to all Bidders except the three (3) lowest Bidders within three (3) days after the formal opening of bids. The remaining Bid Securities will be returned within forty-eight (48) hours after the Owner and the successful Bidder have executed the Contract and executed performance and payment bonds have been approved by the Owner. If a Contract has not been executed or performance and payment bonds have not been approved by the Owner within forty-five (45) days after the scheduled closing time for the receipt of bids, then Bid Securities will be returned within three (3) days after the expiration of this forty-five (45) day period unless the Bid Security has been forfeited under § 4.2.2.

§ 4.3 Submission of Bids
§ 4.3.1 A Bidder shall submit its Bid as (*Paragraphs deleted*)
a paper Bid, as indicated in the Advertisement for Bid.

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

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

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

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

§ 4.4 Modification or Withdrawal of Bid

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

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

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within three days, or pursuant to a timeframe specified by the law of the jurisdiction

where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be returned.

§ 4.4.4 Unless a Bid error complies with § 4.4.3, a Bid may not be modified, withdrawn or canceled by the Bidder for a period of forty-five (45) days following the time and date designated for the receipt of Bids, and each Bidder agrees to this requirement in submitting a Bid.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

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

§ 5.2 Rejection of Bids

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

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner, for Public projects, to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

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

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305[™], Contractor's Qualification Statement, or other document included in the Project Manual, unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability

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

§ 6.3 Submittals

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

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

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

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an

acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

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

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 The Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

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

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

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall (Paragraphs deleted)

each be equal to one hundred (100) percent of the Contract Sum.

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than ten (10) days after the Bidder has received notice of the acceptance of its Bid but in no event shall bonds be delivered later than the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

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

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

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

ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS ARTICLE 8

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

AIA Document A132[™]_2009, Standard Form of Agreement Between Owner and Contractor, .1 Construction Manager as Adviser Edition.

(Paragraphs deleted)

AIA Document A232[™]–2009, General Conditions of the Contract for Construction, 2

(Paragraphs deleted)

Construction Manager as Adviser Edition.

(Paragraph deleted) .3

Drawings

Number

Title

Date

7

.4 Specifications

	Sectio	n	Title	Date	Pages
.5	Adder	nda:			
	Numb	er	Date	Pages	
.6	Other (Check	Exhibits: k all boxes that apply	and include appropriate in	formation identifying the e	exhibit where required.)
	[]	AIA Document E20 (Insert the date of t)4™–2017, Sustainable Pro The E204-2017.)	jects Exhibit, dated as ind	icated below:
	[]	The Sustainability I	Plan:		
	Title		Date	Pages	
	[]	Supplementary and	other Conditions of the Co	ntract:	
	Docum	nent	Title	Date	Pages
_	0.1				

.7 Other documents listed below: (List here any additional documents that are intended to form part of the Proposed Contract Documents.)

ARTICLE 9: NEWFORMA REQUIREMENTS

9.1 After notification of selection for the award of the Contract, the Bidder shall be required to use the Newforma Info Exchange for the transfer of Submittals, Shop Drawings and RFI's. There will be **no exceptions** to this requirement. The contractor will be given a Login and Password free of charge.

ARTICLE 10: TAXES

I

10.1 The Owner is an organization, which is exempt from New York State and Local Sales and Use Taxes. Materials purchased for use in fulfilling this Contract will be exempt from New York Sales Tax. The Owner will provide the Contractor with a completed Form ST-119.1, Exempt Organization Certification. The Contractor shall present a copy of this Form and a completed Form ST-120.1, Contractor Exempt Purchase Certificate, to each supplier. Should sales tax be assessed, the Owner agrees that the Contract Sum shall be increased by the full amount of such assessment.

Additions and Deletions Report for

AIA[®] Document A701[™] – 2018

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.

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PAGE 1

Newburgh Enlarged City School District Phase 5: 2019 Capital Improvements Project Vails Gate Elementary School SED # 44-16-00-01-0-018-009

...

Newburgh Enlarged City School District 124 Grand St. Newburgh, NY 12550

CPL Architects, Engineers, Landscape Architect and Surveyor, D.P.C. d/b/a CPL **50 Front Street** Newburgh, NY 12550 PAGE 2

§ 1.2 Definitions set forth in the General and Supplementary (if required) Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

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

...

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein. (Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

may obtain Bidding Documents as designated in the Advertisement or Invitation to Bid, for the deposit sum and method stated therein.

...

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of thirty (30) days following the award of the Contract or rejection of the Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be

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refunded. Good condition as used in this section means that the Bidding Documents must be returned bound as issued, legible, and containing only the markings necessary for bidding purposes. PAGE 3

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

...

in writing via email and shall be received by the Architect at least seven working days prior to the date for receipt of Bids.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)Bids, as follows:

Perry Crosson, pcrosson@cplteam.com

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

§ 3.2.4 In the absence of an interpretation, correction or change, should the Drawings disagree in themselves or with the Specifications, the better quality, the costlier or the greater quantity of work or materials shall be estimated upon. and unless otherwise ordered, shall be furnished.

§ 3.2.5 Communications regarding the Bidding Documents shall be directed to; Ingrid Martinez, Telephone Number: (800) 274-9000

§ 3.2.6 EQUIVALENCY

§ 3.2.6.1 In the Specifications, if two or more kinds, types, brands, or manufacturers or materials are named, they shall be regarded as the required standard of quality, and are presumed to be equal. The Contractor may select one of these items or, if the Contractor desires to use any kind, type, brand, manufacturer or material other than those named in the Specification, he shall indicate in writing to the Architect and Owner, and prior to the award of Contract, what kind, type, brand or manufacturer is included in the Base Bid for the specified item. Refer to Specification 012519 Equivalents for Equivalent Certification Form. PAGE 4

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents. The procedure for review and approval of Substitutions is set forth in the § 3.4.2 of the General and Supplementary (if required) Conditions of the Contract and in the General Requirements (Division 1 of the Specifications).

• • •

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

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

Documents through the method stated in the Advertisement to Bid.

...

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner. Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction

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where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

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

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

§ 4.2.1 Each Bid shall be accompanied by the following bid security: (Insert the form and amount of bid security.)

Bid Security of not less than five percent (5%) of the amount of the Bid, in the form of a Bid Bond or a Certified Check made payable to the Owner.

§ 4.2.2 The Except as stated under § 4.4.3, the Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the the Bid, with the understanding that the Bid Security shall guarantee that the Bidder will not withdraw its Bid for a period of forty-five (45) days after the scheduled closing time for the receipt of Bids, and that if its Bid is accepted, the Bidder will enter into a formal contract with the Owner in accordance with the terms stated in the Bid and will furnish any required performance and payment bonds at the time required. In the event of the withdrawal of said Bid within the forty-five (45) day period or the failure of the successful Bidder to enter into the Contract with the Owner or the failure of the successful Bidder to furnish required performance and payment bonds at the time required, the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. as a penalty, which represents the damage the Owner incurred as a result of the Bidder's default. PAGE 5

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning days after the opening of Bids, withdraw its Bid and request the return of its bid security. Bid Securities shall be returned to all Bidders except the three (3) lowest Bidders within three (3) days after the formal opening of bids. The remaining Bid Securities will be returned within forty-eight (48) hours after the Owner and the successful Bidder have executed the Contract and executed performance and payment bonds have been approved by the Owner. If a Contract has not been executed or performance and payment bonds have not been approved by the Owner within forty-five (45) days after the scheduled closing time for the receipt of bids, then Bid Securities will be returned within three (3) days after the expiration of this forty-five (45) day period unless the Bid Security has been forfeited under § 4.2.2.

...

§ 4.3.1 A Bidder shall submit its Bid as indicated below: (Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

a paper Bid, as indicated in the Advertisement for Bid.

...

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two-three days, or pursuant to a timeframe specified by the law of the

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jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows: returned.

(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

§ 4.4.4 Unless a Bid error complies with § 4.4.3, a Bid may not be modified, withdrawn or canceled by the Bidder for a period of forty-five (45) days following the time and date designated for the receipt of Bids, and each Bidder agrees to this requirement in submitting a Bid.

PAGE 6

§ 5.3.1 It is the intent of the Owner Owner, for Public projects, to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Documents and does not exceed the funds available. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

...

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, or other document included in the Project Manual, unless such a Statement has been previously required and submitted for this Bid. PAGE 7

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

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

...

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

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

each be equal to one hundred (100) percent of the Contract Sum.

...

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following ten (10) days after the Bidder has received notice of the acceptance of its Bid but in no event shall bonds be delivered later than the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

- AIA Document A101TM 2017, A132TM 2009, Standard Form of Agreement Between Owner and .1 Contractor, unless otherwise stated below. Construction Manager as Adviser Edition. (Insert the complete AIA Document number, including year, and Document title.)
- AIA Document A101[™] 2017, Exhibit A, Insurance and Bonds, unless otherwise stated below. 2 (Insert the complete AIA Document number, including year, and Document title.)

Δ

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.3 AIA Document A201TM-2017, .2 AIA Document A232TM_2009, General Conditions of the Contract for Construction, unless otherwise stated below. (Insert the complete AIA-Document number, including year, and Document title.)

-AIA Document E203TM 2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below: Construction Manager as Adviser Edition. (Insert the date of the E203 2013.)

...

-4_Specifications

PAGE 8

.7.__.5_Addenda:

...

.8 Other Exhibits:

...

...

ARTICLE 9: NEWFORMA REQUIREMENTS

9.1 After notification of selection for the award of the Contract, the Bidder shall be required to use the Newforma Info Exchange for the transfer of Submittals, Shop Drawings and RFI's. There will be no exceptions to this requirement. The contractor will be given a Login and Password free of charge.

ARTICLE 10: TAXES

10.1 The Owner is an organization, which is exempt from New York State and Local Sales and Use Taxes. Materials purchased for use in fulfilling this Contract will be exempt from New York Sales Tax. The Owner will provide the Contractor with a completed Form ST-119.1, Exempt Organization Certification. The Contractor shall present a copy of this Form and a completed Form ST-120.1, Contractor Exempt Purchase Certificate, to each supplier. Should sales tax be assessed, the Owner agrees that the Contract Sum shall be increased by the full amount of such assessment.

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Certification of Document's Authenticity

AIA[®] Document D401[™] – 2003

I, , 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 14:14:18 ET on 09/28/2021 under Order No. 9726404439 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A701[™] - 2018, Instructions to Bidders, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and **Deletions Report.**

(Signed)

(Title)

(Dated)

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13740.20

EXISTING CONDITION

003119 - 1

SECTION 003119 EXISTING CONDITION INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITION INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.
- B. Existing drawings that include information on existing conditions including previous construction at Project site are available for viewing or download **Email requests for** download link shall be sent to Perry Crosson at Pcrosson@cplteam.com
- C. Related Requirements:
 - 1. Section 002113 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
 - 2. Section 003126 "Existing Hazardous Material Information" for hazardous materials reports that are made available to bidders.
 - 3. Section 003132 "Geotechnical Data" for reports and soil-boring data from geotechnical investigations that are made available to bidders.

PART 2 PRODUCTS – NOT USED PART 3 EXECUTION – NOT USED

END OF SECTION

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EXISTING HAZARDOUS MATERIAL INFORMATION

003126 - 1

SECTION 003126 EXISTING HAZARDOUS MATERIAL INFORMATION

PART 1 GENERAL

1.01 EXISTING HAZARDOUS MATERIAL INFORMATION

- A. This Section with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.
- B. An existing asbestos report for Project, prepared by Insert agency or firm name, dated Insert date of report, is appended to this Document.
- C. An existing lead report for Project, prepared by Insert agency or firm name, dated Insert date of report, is appended to this Document.
- D. An existing PCB (Polychlorinate Biphenyl) information report for Project, prepared by Insert agency or firm name, dated Insert date of report, is appended to this Document.
- E. Related Requirements:
 - 1. Revise list below to suit Project. Revise below if Work includes remediation of hazardous materials.
 - a. Section 002000 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
 - b. Section 024119 "Selective Structure Demolition" for notification requirements if materials suspected of containing hazardous materials are encountered.

PART 2 PRODUCTS – NOT USED PART 3 EXECUTION – NOT USED

END OF SECTION

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PRE-DEMOLITION SURVEY REPORT FOR ASBESTOS-CONTAINING MATERIALS (ACM)

Prepared for:

CLARK PATTERSON LEE 50 Front Street Newburgh, NY 12550

at:

VAILS GATE STEAM ACADEMY 400 Old Forge Road New Windsor, NY 12553

September 24, 2021

QuES&T Project #Q21-4189



September 24, 2021

Clark Patterson Lee 50 Front Street Newburgh, NY 12550

ATTN: Lauren Tarsio Via E-mail: <u>ltarsio@cplteam.com</u>

Re: Vail's Gate STEAM Academy Pre-Demolition & Pre-Renovation Asbestos Inspection QuES&T Project #Q21-4189

Dear Ms. Tarsio,

Please find attached Pre-Demolition Inspection Report for Asbestos-containing Materials (ACM), Polychlorinated Biphenyl (PCB) and Suspect Universal/Hazardous Waste throughout interior and exterior areas included within the above-referenced project. **Quality Environmental Solutions & Technologies**, Inc. (**QuES&T**) performed visual assessments, along with proper, representative bulk sample analysis performed for the detection of ACM and other requested hazardous materials in compliance with the requirements of 12 NYCRR Part 56 and all other applicable local, state and federal regulations.

As per 12 NYCRR Part 56-5.5.1(g), upon receipt of this report, Building Owner's must provide:

- 1) One (1) copy of this completed report shall be retained by the Owner for a period of "life of building" plus thirty (30) years.
- One (1) copy shall be submitted to the NYSDOL Asbestos Control Bureau, State Campus Bldg. 12, Room #154, Albany, NY 12240.
- 3) One (1) copy shall be submitted to the local Municipality issuing all work permits.
- 4) One (1) copy shall be kept on the construction site, with the asbestos abatement project notification(s)/variance(s), as required, throughout the duration of asbestos abatement, as well as any demolition, renovation, remodeling, repair or addition activities.

The attached report summarizes the inspection protocol and inspection results for your review. **QuES&T** believes this report accurately reflects the material condition existing in the functional spaces at the time of our inspection.

Should you wish to discuss this matter further or require additional information concerning this submittal, please contact us at (845) 298-6031. **QuES&T** appreciates the opportunity to assist you in the environmental services area.

Sincerely,

Micholus Salermo

Nicholas Salerno Field & Technical Services NYS/AHERA Inspector/Project Monitor Cert. #AH 16-10091 NYS Mold Assessor Cert. #MA01571 Niton-Certified XRF Technician

Cc: QuES&T File Cc: lgoldstein@qualityenv.com



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Арр	endix A ACM Location Drawings & Photos		
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Appendix C Personnel Licenses & Certifications

I. INTRODUCTION:

Quality Environmental Solutions & Technologies, Inc. (**QuES&T**) performed a Pre-Demolition Asbestos Survey, in conformance with Title 12 NYCRR Part 56-5.1, on <u>August 12, 2021</u>, for CPL in support of the planned renovation of Vail's Gate STEAM Academy and demolition of the MODS, located at 400 Old Forge Road, New Windsor, NY 12553. The survey included a visual inspection / assessment for Presumed Asbestos-containing Materials (PACM) and suspect miscellaneous Asbestos-containing Materials (ACM) throughout accessible interior and exterior locations to be affected by future renovation activities.

QuES&T established functional spaces based either on physical barriers (i.e. walls, doors, etc.) or homogeneity of material. Within each functional space identified, a visual inspection was performed using reasonable care and judgment, to identify and assess location, quantity, friability and condition of all accessible installed ACM building materials observed at the affected portion of the building/structure.

Limited localized demolition of building surfaces was performed, as part of this survey, to access concealed surfaces. No disassembly of installed equipment was conducted as part of this inspection. ACM concealed within structural components and equipment interiors or that is accessible only through extensive mechanical or structural demolition may not have been identified as part of this survey. When any construction activity, such as demolition, remodeling, renovation or repair work, reveals PACM or suspect miscellaneous ACM that has not been identified, as part of this survey, all construction activities shall cease in the affected area.

The survey included both visual inspection of accessible spaces and representative sampling of suspect building materials for ACM. Samples collected were analyzed by a laboratory approved under the New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP). Samples were analyzed in the laboratory by Polarized Light Microscopy (PLM), Polarized Light Microscopy-NOB (PLM-NOB) and/or Quantitative Transmission Electron Microscopy (QTEM), as required. Sample collection and laboratory analysis were conducted in compliance with the requirements of Title 12 NYCRR Part 56-5.1, 29 CFR 1926.1101 and standard EPA & OSHA accepted methods. Samples consisting of multiple layers were separated and analyzed independently in the laboratory.

Certified **QuES&T** personnel (Appendix C), Mr. Nicholas Salerno (Cert. #AH 16-10991), Mr. Shannon Talsma (Cert. #AH 16-07559) & Mr. Larry Goldstein (Cert. #AH 12-20855) performed visual assessments throughout the building interior and exterior. A total of ninety-eight (98) samples of installed and accessible suspect building materials were analyzed by a laboratory approved under the NYSDOH ELAP. Forty-four (44) samples were analyzed using Polarized Light Microscopy (PLM) for friable materials; fifty-four (54) samples were analyzed using Polarized Light Microscopy (PLM-NOB) for non-friable organically bound materials; and forty-six (46) samples were analyzed by Confirmatory-QTEM following negative-determinations using PLM-NOB protocols.

II. INSPECTION SUMMARY:

A visual inspection was performed and homogenous material types were established based on appearance, color and texture. The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. The findings and conclusions of this report are not meant to be indicative of future conditions at the site and does not warrant against conditions that were not evident from visual observations or historical information obtained from others.

Representative bulk sampling was performed on suspect building materials for laboratory analysis using PLM, PLM-NOB, and/or QTEM. The following is a summary of installed building materials sampled:

- <u>Wall Materials</u> Joint Compound, Sheetrock, CMU & Mortar, Cove Base Molding & Adhesive, Stucco, Stone Panel, Cement Board, Brick, Brick Mortar, Tar Paper Vapor Barrier.
- <u>Ceiling Materials</u> Glue Dab, 2'x12' Ceiling Tile, 2'x4' Ceiling Tile, 2'x4' Dot Speckled Ceiling Tile, 2'x4' Dot Canyon Ceiling Tile.
- <u>Flooring Materials</u> 9"x9" Floor Tile & Mastic, 12"x12" Floor Tile & Mastic, Ceramic Floor Tile, Grout, Mastic.
- <u>Thermal System Insulation (TSI) Materials</u>- Thermal Systems Insulation, Mudded Joint Packing, Fiberglass Insulation.
- <u>Roofing Materials</u> Modified Roof, Perlite, Isofoam, Tar & Shingle Roof, Hot Mop Roof on Felt.
- <u>Miscellaneous Materials</u> Anti-Sweat Tar, Caulk.

III. IDENTIFIED ASBESTOS-CONTAINING MATERIALS (ACM):

<u>IDENTIFIED ACM</u> <u>VAILS GATE STEAM ACADEMY</u> 400 Old Forge Road New Windsor, NY 12553 (Refer to Appendix A for details)							
KEY: ACM = Materials containing greater than 1% of asbestos; LF = Linear Feet; SF = Square Feet; PACM = Presumed Asbestos-containing Materials; Friable = ACM capable of being released into air, and which can be crumbled, pulverized, powdered, crushed or exposed by hand-pressure.							
Location	Material	Approximate Quantity	Friable?	Condition			
Interior							
MODS, Hallway, Floor, Tan	12"x12" Floor Tile & Mastic	1,800 SF	No	Good			
Stage, Stair Vestibule, Floor9"x9" Floor Tile & Mastic		20 SF	No	Good			
Boiler Room, Pipe Tunnel, on MetalThermalSystemsInsulation&Pipe ^{1, 2} Mudded Joint Packing ^{1, 2}		Indeterminate ¹	Yes	Damaged ²			
Throughout Building ¹	Thermal Systems Insulation & Mudded Joint Packing ¹	Indeterminate ¹	Yes	Indeterminate ¹			

Exterior

** No Asbestos Containing Materials (ACM) Identified throughout Building **

NOTES:

- 1. Due to limited visual access to the ceiling plenums due to sheetrock being above the majority of the suspended ceilings as well as a lack of destructive sampling, the extent of Thermal Systems Insulation & Mudded Joint Packing within the scope of work cannot be determined. These materials should be considered ACM if encountered in additional locations.
- The Thermal Systems Insulation & Mudded Joint Packing identified within the Boiler Room Pipe Tunnel are damaged with debris within the tunnel. Cleanup of this area must be performed in compliance with all standards within Title 12 NYCRR Part 56.
- 3. OSHA does not recognize a minimum concentration of asbestos for a material to be considered asbestos-containing. Employees whose work practices involve disturbance of any amount of asbestos should be monitored to determine occupational exposure.

IV. GENERAL DISCUSSION:

All construction personnel as well as individuals who have access to locations where asbestos containing materials (ACM) exists should be informed of its presence and the proper work practices in these areas. Conspicuous labeling of all ACM is suggested to ensure personnel are adequately informed. Personnel should be informed not to rest, lean or store material or equipment on or near these surfaces and not to cut, saw, drill, sand or disturb ACM. All removal, disturbance, and repair of ACM should be performed in compliance with Title 12 NYCRR Part 56 by persons properly trained to handle ACM. Facility custodial and maintenance personnel should receive training commensurate with their work activities as defined in 29 CFR 1910.1001.

The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. Conditions may have changed since that time and the findings and conclusions of this report are not meant to be indicative of future conditions at the Site. This report does not warrant against conditions that were not evident from visual observations or historical information obtained, or conditions that could only be determined by physical sampling or other intrusive investigation techniques that are outside the proposed scope of work.

ENVIRONMENTAL CONSULTING & TRAINING

V. TRANSMITTAL OF BUILDING SURVEY INFORMATION:

As specified in Title 12 NYCRR Part 56 5.1 (g), information derived from this building survey shall be immediately transmitted by the building owner or his/her agent to the commissioner through the Department's Division of Safety and Health, Asbestos Control Bureau, and to the local government entity charged with issuing a permit for such demolition under applicable State or local laws or, if no such permit is required, to the town or city clerk where the building is located.

VI. ABATEMENT REQUIRED:

As specified in Title 12 NYCRR Part 56-5.1 (h) and (i), "If the building/structure asbestos survey finds that the portion of the building/structure to be demolished, removated, remodeled, or have repair work contains ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material, which is impacted by the work, the owner or the owner's agent shall conduct, or cause to have conducted, asbestos removal performed by a licensed asbestos abatement contractor in conformance with all standards set forth in this Part. All ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material impacted by the demolition, renovation, remodeling or repair project shall be removed as per this Part, prior to access or disturbance by other uncertified trades or personnel. No demolition, renovation, remodeling or repair work shall be commenced by any owner or the owner's agent prior to the completion of the asbestos abatement in accordance with the notification requirements of this Part...All building/structure owners and asbestos abatement contractors on a demolition, renovation, remodeling, or repair project, which includes work covered by this part, shall inform all trades on the work site about PACM, ACM, asbestos material and suspect miscellaneous ACM...Bids may be advertised and contracts awarded for demolition, remodeling, renovation, or repair work, but no work on the current intermediate portion of the project shall commence on the demolition, removation, remodeling or repair work by any owner or agent prior to completion of all necessary asbestos abatement work for the current intermediate portion of the entire project, in conformance with all standards set forth in this Part."

Prior to conducting demolition or construction work at the building, all ACM affected/impacted by such activities shall be removed utilizing a licensed asbestos abatement contractor and NYSDOL/EPA/NYC certified personnel prior to construction/demolition activities. All work conducted should be in accordance with all legal requirements, including but not limited to U.S. Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 61], New York State Industrial Code Rule 56 Asbestos Regulations (ICR 56) and Chapter 1 of Title 15 of the Rules of the City of New York Regulations, as applicable. Advance notification of the asbestos project to the USEPA, NYSDOL, and NYCDEP may be required.

All suspect building materials not sampled during this survey should be considered ACM until these materials are sampled and analyzed for ACM in the laboratory. Concealed ACM: In addition to the ACMs identified at the site, there is a possibility that concealed ACM may exist at the subject facility. As such, if any concealed suspect ACM is encountered during future construction related activities, the work should immediately stop. Prior to resuming the work, the suspect ACM should either be 1) Sampled by an appropriately-certified asbestos professional and submitted to an Approved NYSDOH ELAP laboratory for asbestos analysis or 2) Presumed to be ACM (PACM) and removed by a licensed asbestos abatement contractor for disposal in accordance with all applicable regulations.

VII. DISCLAIMERS

It should be noted that the information contained within this report is based solely upon site observations and the results of laboratory analysis for samples collected by **QuES&T**. These observations and results are time dependent, subject to changing site conditions and revisions to Federal, State and Local regulations. **QuES&T** warrants that these findings have been promulgated after being prepared in general accordance with generally accepted practices in the abatement industries. **QuES&T** also recognizes that inspection laboratory data is not usually sufficient to make all abatement and management decisions.

Due to the potential for concealed Asbestos-containing Materials (ACM) or other regulated materials, this report should not be construed to represent all ACM or regulated materials within the site(s). All quantities of ACM or other regulated materials identified, and all dimensions listed within this report are approximate and should be verified On-site.

This inspection report is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or Variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project. The Linear and/or Square Footages (LF / SF) listed within this Report are only approximates. Abatement Contractor(s) are required to visit the building(s) in order to take actual field measurements within each listed location.



Appendix A: ACM LOCATION DRAWINGS













Appendix B: SAMPLE LOCATIONS & ANALYTICAL DATA



Eastern Analytical Services, Inc.

Phone (914) 592-8380

4 Westchester Plaza Elmsford, New York 10523-1610 http://www.EASInc.com Fax (914) 592-8956

September 23, 2021

Mr. Lawrence J. Holzapfel QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling EAS Batch No. 2106768

Dear Mr. Holzapfel:

Enclosed please find the laboratory results for the 44 bulk sample(s) received by Eastern Analytical Services, Inc. August 14, 2021.

Thank you for allowing EAS, Inc. to provide QuES&T, Inc. with professional analytical services. If you have any questions or require additional information or assistance, please feel free to contact me at the number above or e-mail Lab@EASInc.com.

Sincerely,

EASTERN ANALYTICAL SERVICES, INC.

Paul Stascavage Laboratory Director

PS:om

Enclosures

Electronically Transmitted September 23, 2021



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-01	4189-02	4189-03	4189-04
Layer Number					
Lab ID Numbe	r	2781208	2781209	2781210	2781211
Sample Locatio	DD	Boiler Room Pipe Tunnel, On Metal Pipe	Boiler Room Pipe Tunnel, On Metal Pipe	Boiler Room Pipe Tunnel, On Metal Pipe	Boiler Room Pipe Tunnel, On Metal Pipe Elbow
Sample Description		Thermal Systems Insulation	Thermal Systems Insulation	Thermal Systems Insulation	Mudded Joint Packing
Method of Qua	ntification	Point Count	Point Count	Point Count	Point Count
Appearance	Layered	No	No	No	Yes
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Gray	Gray	Gray	Gray/Brown
Sample Treatm	ent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos	% Amosite	0.0	0.0	0.0	0.0
Content	% Chrysotile	30.8	28.6	28.6	20.0
	% Other	0.0	0.0	0.0	0.0
	% Total Asbestos	30.8	28.6	28.6	20.0
Other Fibrous	% Fibrous Glass	0.0	0.0	0.0	0.0
Materials	% Cellulose	0.0	0.0	0.0	30.0
Present	% Other	0.0	0.0	0.0	0.0
	% Unidentified	0.0	0.0	0.0	0.0
Non-Fibrous	% Silicates	0.0	0.0	0.0	0.0
Materials	% Carbonates	0.0	0.0	0.0	0.0
Present	% Other	0.0	0.0	0.0	0.0
	% Unidentified	69.2	71.4	71.4	50.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-05	4189-06	4189-07	4189-08
Layer Number					
Lab ID Numbe	r	2781212	2781213	2781214	2781215
Sample Location		Boiler Room Pipe Tunnel, On Metal Pipe Elbow	Boiler Room Pipe Tunnel, On Metal Pipe Elbow	Room 130, Partition Wall, On Sheetrock	Room 130, Partition Wall, On Sheetrock
Sample Description		Mudded Joint Packing	Mudded Joint Packing	Joint Compound	Joint Compound
Method of Qua	ntification	Point Count	Point Count	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	Yes No Yes Gray/Brown	Yes No Yes Gray/Brown	Yes No Yes White/Yellow	Yes No Yes White/Yellow
Sample Treatm	ent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 19.0 0.0 19.0	0.0 18.2 0.0 18.2	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 28.6 0.0 0.0	0.0 31.8 0.0 0.0	10.0 0.0 0.0 0.0	10.0 0.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	0.0 0.0 0.0 52.4	0.0 0.0 0.0 50.0	30.0 30.0 0.0 30.0	30.0 30.0 0.0 30.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-09	4189-10	4189-11	4189-12
Layer Number					
Lab ID Numbe	r	2781216	2781217	2781218	2781219
Sample Locatio	on	Room 130, Partition Wall, On Sheetrock	Room 132 (IT Room), Partition Wall	Room 130, Partition Wall	Hall, Ceiling, Above Suspended Ceiling
Sample Descrip	ption	Joint Compound	Sheetrock	Sheetrock	Sheetrock
Method of Qua	intification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	Yes No Yes White/Yellow	Yes No Yes Gray/Brown/White	Yes No Yes Gray/Brown/White	Yes No Yes Gray/Brown
Sample Treatm	ent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	10.0 0.0 0.0 0.0	5.0 15.0 0.0 0.0	5.0 10.0 0.0 0.0	0.0 15.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	30.0 25.0 0.0 35.0	20.0 30.0 0.0 30.0	20.0 30.0 0.0 35.0	20.0 35.0 0.0 30.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein 	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-13	4189-14	4189-14	4189-15
Layer Number			1	2	1
Lab ID Numbe	r	2781220	2781221	2781221	2781222
Sample Location		Hall, Ceiling, Above Suspended Ceiling	Room 139, Partition Wall	Room 139, Partition Wall	Boiler Room Near Mods, Perimeter Wall
Sample Description		Sheetrock	CMU & Mortar (CMU Layer)	CMU & Mortar (Mortar Layer)	CMU & Mortar (CMU Layer)
Method of Qua	intification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered	Yes	No	No	No
	Homogenous	No	No	Yes	No
	Fibrous	Yes	No	No	No
	Color	Gray/Brown	Gray/Black	Gray	Gray/Black
Sample Treatm	ent	Homogenized	Homogenized	None	Homogenized
Asbestos	% Amosite	0.0	0.0	0.0	0.0
Content	% Chrysotile	0.0	0.0	0.0	0.0
	% Other	0.0	0.0	0.0	0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Fibrous	% Fibrous Glass	0.0	0.0	0.0	0.0
Materials	% Cellulose	15.0	0.0	0.0	0.0
Present	% Other	0.0	0.0	0.0	0.0
	% Unidentified	0.0	0.0	0.0	0.0
Non-Fibrous	% Silicates	20.0	15.0	25.0	20.0
Materials	% Carbonates	30.0	35.0	30.0	35.0
Present	% Other	0.0	0.0	0.0	0.0
	% Unidentified	35.0	50.0	45.0	45.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. ¹ : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-15	4189-38	4189-38	4189-39
Layer Number		2	1	2	1
Lab ID Numbe	r	2781222	2781223	2781223	2781224
Sample Location		Boiler Room Near Mods, Perimeter Wall	MODS, Room 1B Bathroom, Floor, On Wood	MODS, Room 1B Bathroom, Floor, On Wood	MODS, Room 1B Bathroom, Floor, On Wood
Sample Description		CMU & Mortar (Mortar Layer)	Ceramic Floor Tile, Grout & Mastic (Tile Layer)	Ceramic Floor Tile, Grout & Mastic (Grout Layer)	Ceramic Floor Tile, Grout & Mastic (Tile Layer)
Method of Qua	ntification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	No Yes No Gray	Yes No No Gray/White	No Yes No White	Yes No No Gray/White
Sample Treatm	ent	None	Homogenized	None	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	25.0 30.0 0.0 45.0	40.0 0.0 0.0 60.0	25.0 25.0 0.0 50.0	40.0 0.0 0.0 60.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-39	4189-48	4189-49	4189-50
Layer Number		2			
Lab ID Numbe	r	2781224	2781225	2781226	2781227
Sample Location		MODS, Room 1B Bathroom, Floor, On Wood	MODS, In Wall, Behind Wall Panels	MODS, In Wall, Behind Wall Panels	MODS, Exterior, Under Windows, On Block
Sample Descrip	otion	Ceramic Floor Tile, Grout & Mastic (Grout Layer)	Fiberglass Insulation	Fiberglass Insulation	Stucco
Method of Qua	intification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	No Yes No White	Yes No Yes Brown/Black/Gray	Yes No Yes Brown/Black/Gray	Yes No No Gray/Brown
Sample Treatm	ient	None	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 0.0 0.0 0.0	35.0 20.0 0.0 0.0	40.0 20.0 0.0 0.0	0.0 0.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	25.0 30.0 0.0 45.0	10.0 0.0 0.0 35.0	10.0 0.0 0.0 30.0	35.0 25.0 0.0 40.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay 	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
NYS Lab No.	10851				
Sample ID Nur	nber	4189-51	4189-52	4189-53	4189-54
Layer Number					
Lab ID Numbe	r	2781228	2781229	2781230	2781231
Sample Location		MODS, Exterior, Under Windows, On Block	MODS, Exterior, Under Windows, On Block	MODS, Exterior, Under Windows, On Block	MODS, Exterior, Under Windows, On Block
Sample Descrip	ption	Stucco	Stucco	Stucco	Stucco
Method of Qua	ntification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	Yes No No Gray/Brown	Yes No No Gray/Brown	Yes No No Gray/Brown	Yes No No Gray/Brown
Sample Treatm	ent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	30.0 30.0 0.0 40.0	30.0 25.0 0.0 45.0	35.0 25.0 0.0 40.0	30.0 25.0 0.0 45.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-55	4189-56	4189-57	4189-58
Layer Number					
Lab ID Numbe	r	2781232	2781233	2781234	2781235
Sample Locatio	on	MODS, Exterior, Under Windows, On Block	MODS, Exterior, Under Windows, On Block	MODS, Exterior, Under Windows, On Block	MODS, Exterior, Under Windows, On Block
Sample Descrip	otion	Stucco	Stucco	Stucco	Stucco
Method of Qua	ntification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered	Yes	Yes	Yes	Yes
	Homogenous	No	No	No	No
	Fibrous	No	No	No	No
	Color	Gray/Brown	Gray/Brown	Gray/Brown	Gray/Brown
Sample Treatm	lent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos	% Amosite	0.0	0.0	0.0	0.0
Content	% Chrysotile	0.0	0.0	0.0	0.0
	% Other	0.0	0.0	0.0	0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Fibrous	% Fibrous Glass	0.0	0.0	0.0	0.0
Materials	% Cellulose	0.0	0.0	0.0	0.0
Present	% Other	0.0	0.0	0.0	0.0
	% Unidentified	0.0	0.0	0.0	0.0
Non-Fibrous	% Silicates	35.0	35.0	30.0	30.0
Materials	% Carbonates	25.0	25.0	30.0	25.0
Present	% Other	0.0	0.0	0.0	0.0
	% Unidentified	40.0	40.0	40.0	45.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay thod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 125	590
Sample ID Nur	nber	4189-61	4189-62	4189-63	4189-64
Layer Number					
Lab ID Numbe	r	2781236	2781237	2781238	2781239
Sample Location		MODS, Exterior, Behind Stone Panel	MODS, Exterior, Behind Stone Panel	1958 Wing, Exterior, Wall	1958 Wing, Exterior, Wall
Sample Descrij	ption	Cement Board	Cement Board	Brick	Brick
Method of Qua	intification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	No No Gray/Brown	No No Gray/Brown	No No Red	No No Red
Sample Treatm	ent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	20.0 30.0 0.0 50.0	20.0 30.0 0.0 50.0	30.0 0.0 0.0 70.0	30.0 0.0 0.0 70.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-65	4189-66	4189-67	4189-68
Layer Number					
Lab ID Numbe	r	2781240	2781241	2781242	2781243
Sample Location	n	1958 Wing, Exterior, Wall	1958 Wing, Exterior, Wall	1987 Wing, Exterior, Wall	1987 Wing, Exterior, Wall
Sample Descrip	otion	Brick Mortar	Brick Mortar	Brick	Brick
Method of Qua	ntification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	No No Gray/Brown	No No Gray/Brown	Yes No No Red/Gray	Yes No No Red/Gray
Sample Treatm	ent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	30.0 25.0 0.0 45.0	30.0 30.0 0.0 40.0	35.0 0.0 0.0 65.0	35.0 0.0 0.0 65.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/S.*Date Received :08/14/2021Date Analyzed :09/01/2021Analyzed By :George HtaySignature :Image: Collected Signature :Analytical Method :NYS-DOH 19NVLAP Lab Code :101646-0NYS Lab No.10851		Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	mber	4189-69	4189-70	4189-73	4189-74
Layer Number					
Lab ID Numbe	er	2781244	2781245	2781246	2781247
Sample Location		1987 Wing, Exterior, Wall	1987 Wing, Exterior, Wall	MODS Roof, 2nd Layer, Under Modified Layer, On Isofoam	MODS Roof, 2nd Layer, Under Modified Layer, Or Isofoam
Sample Descrip	ption	Brick Mortar	Brick Mortar	Perlite	Perlite
Method of Qua	intification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	No No Gray	No No Gray	No No Yes Brown/Gray	No No Yes Brown/Gray
Sample Treatm	nent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 30.0 0.0 0.0	0.0 30.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	25.0 20.0 0.0 55.0	25.0 20.0 0.0 55.0	10.0 0.0 20.0 Perlite 40.0	10.0 0.0 20.0 Perlite 40.0



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. : 08/14/2021 : 09/01/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-79	4189-80	4189-83	4189-84
Layer Number					
Lab ID Numbe	r	2781248	2781249	2781250	2781251
Sample Location		MODS, 5th Layer, Under Tar & Shingle, On Wood	MODS, 5th Layer, Under Tar & Shingle, On Wood	MODS, Exterior, Behind Siding	MODS, Exterior, Behind Siding
Sample Description		Perlite	Perlite	Perlite	Perlite
Method of Qua	ntification	Visual Estimation	Visual Estimation	Visual Estimation	Visual Estimation
Appearance	Layered Homogenous Fibrous Color	No No Yes Brown	No No Yes Brown	No No Yes Brown	No No Yes Brown
Sample Treatm	ent	Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite % Chrysotile % Other % Total Asbestos	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
Other Fibrous Materials Present	% Fibrous Glass % Cellulose % Other % Unidentified	0.0 35.0 0.0 0.0	0.0 30.0 0.0 0.0	0.0 35.0 0.0 0.0	0.0 35.0 0.0 0.0
Non-Fibrous Materials Present	% Silicates % Carbonates % Other % Unidentified	10.0 0.0 20.0 Perlite 35.0	10.0 0.0 20.0 40.0	10.0 0.0 15.0 Perlite 40.0	10.0 0.0 20.0 Perlite 35.0

Eastern Analytical Services, Inc. Chain of Custody Form

EAS Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12	590		EAS Batch No. Turn-Around: Shipped Via:	2106768 5 Day NY DB004
Analyte:	% Asb			State of Origin:	NY
No. of Samples Received:	44			Sample Disposition:	Standard x Return
No. of Samples Analyzed:	44				
Client Project Number/Name:	RE: CPN Q21-4189 - CPJ Construction Sampling	L - Vail's Gate Elementary School - Pre-			
Lab ID Numbers	: 2781208-2781222;278122 2781245;2781246-278124	23-2781224;2781225-2781235;2781236- 27;2781248-2781249;2781250-2781251			
Collected By:	N. Salerno/S. Talsma/L.		Date:	08/12/2021	
Received By:	Damien Warner	DE MA	Date:	08/14/2021	Time: 1504
Logged In By:	Jacqueline C. Dalida		Date:	08/18/2021	
Prepped By:	Marita Prado	Atomic Trado	Date:	08/31-09/01/2021	
Analyzed By :	George Htay	Core-	Date:	09/01/2021	Time: 1215
Re-Analyzed By:	:		Date:		
Checked By:	Damien Warner	DE M	Date:	09/23/2021	
E-Transmitted By	y: Damien Warner	DE M	Date:	09/23/2021	Time: 1449
Logged Out By:			Date:		



Non-Friable Organically Bound (NOB) Materials - This term refers to a wide variety of building materials, such as vinyl or asphalt floor tile, resilient floor covering, mastic, asphalt shingle, roofing material, caulk, putty, etc.. Polarized Light Microscopy (PLM) analysis has limitations when NOB materials are encountered. These limitations, such as the inability to detect thin or extremely short fibers (less than 1 micrometer in length) generated during the milling process and/or the difficulty of separating asbestos fibers and bundles from the resinous matrix, may lead to false negatives or underestimates of the amount of asbestos fibers present in the sample. Recently, NYS DOH added Ceiling Tiles with Cellulose to the list of materials to be analyzed via the NOB methods. For these reasons, when analysis by PLM yields negative results for the presence of asbestos in NOB materials, The State of New York Department of Health (DOH) has issued the following requirements as of April 8, 2011: NOBs and ceiling tiles with cellulose must be analyzed by both of the gravimetric matrix reduction methods (ELAP Item 198.6 and 198.4) to be deemed negative for asbestos.

EAS is approved by the NYS-DOH to perform analysis of NOB materials via Transmission Electron Microscopy (ELAP Item 198.4). The superior resolution of Transmission Electron Microscopy can detect the presence of asbestos fibers well beyond the range of PLM. In addition, the use of selected-area electron diffraction (SAED) and energy-dispersive spectroscopy (EDS) can positively identify asbestos fibers in the sample. NOB samples determined to contain less than 1% asbestos via the TEM method, must also be analyzed via PLM (198.6) to verify the absence of large amphibole fibers which may not have been successfully transferred to the EM Grids.

The State of New Jersey recently adopted amendments to their regulations requiring gravimetric reduction followed by PLM and TEM analysis for NOB building materials. The regulations can be found at http://wd.dol.state.ni.us/labor/lsse/laws/Asbestos law.html#5a39.

Recently (April 3, 2011), Maine DEP revised their regulations to require gravimetric reduction of NOBs https://www1.maine.gov/dep/waste/asbestos/documents/asbbulksampanalysisprotocolsformYenabled.pdf.

Vermiculite - As of July 9, 2013, NYS has issued new guidance on Vermiculite loose bulk materials and insulation materials which contain Vermiculite. The following quotes have been taken from their guidance letter: "If material is attic fill, block fill or other loose bulk vermiculite materials, it must be designated and treated as ACM. No approved analytical method currently exists to reliably confirm such vermiculite material as non-ACM." "Where thermal systems insulation (TSI), *, or other presumed ACM (PACM) or miscellaneous suspect ACM contain 10% vermiculite or less, certified laboratories may use ELAP Certification Manual Item 198.1 to determine the asbestos content of the material. Where TSI, *, or other PACM or miscellaneous suspect ACM contain greater than 10% vermiculite, Item 198.6 may be used to evaluate the asbestos content of the material; provided, however, that any test results using this method must be reported with the following conspicuous disclaimer:"

"This method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite." See the EPA website at https://www.epa.gov/asbestos/protect-your-family-asbestos-contaminated-vermiculite-insulation

* Surfacing Material Containing Vermiculite - As of May 6, 2016, NYS has issued new guidance regarding Surfacing Material containing vermiculite (essentially expanding the previous requirements for spray-on fireproofing to apply to all surfacing materials). If a surfacing material contains *any* vermiculite, it must be analyzed via NYS-DOH Method 198.8 (or RJ Lee Group Method 055) to be deemed negative for asbestos.

Surface Wipe Samples - Due to the fact that a large percentage of asbestos fibers released from deteriorating asbestos-containing materials or from improperly performed abatement activities are on the order of 5 micrometers or less and are near or below the resolution of a Polarized Light Microscope, Eastern Analytical Services, Inc. recommends that negative surface wipe samples be confirmed utilizing Transmission Electron Microscopy.

Point Counting - New York State Department of Health regulations require quantification of asbestos via the "Stratified Point Count" Method for all bulk samples originating from New York State. Please indicate the state of origin on the Chain of Custody form for all samples submitted to the laboratory. There is no additional charge for quantification using this method.

Layered Samples - NESHAP policy regarding layered bulk samples has changed. In the past, laboratories were required to analyze individual layers of multi-layered bulk samples separately, but report the results in terms of quantity of asbestos for the composite sample. This policy change requires that the layers be analyzed separately and reported as such. Additionally, materials are to be characterized as asbestos or non-asbestos based on the results of the individual layers.

As a result of this policy, EAS will be reporting the results of the individual layers of multi-layered bulk samples submitted for asbestos analysis UNLESS COMPOSITE RESULTS ARE SPECIFICALLY REQUESTED BY THE CLIENT. Additional layers for all bulk samples will be billed as separate samples.

If you have any questions concerning the above, please feel free to contact EAS.



Eastern Analytical Services, Inc.

Phone (914) 592-8380

4 Westchester Plaza Elmsford, New York 10523-1610 http://www.EASInc.com Fax (914) 592-8956

September 23, 2021

Mr. Lawrence J. Holzapfel QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling EAS Batch No. 2106769

Dear Mr. Holzapfel:

Enclosed please find the laboratory results for the 54 bulk sample(s) received by Eastern Analytical Services, Inc. August 14, 2021. The analysis was performed in accordance with NYS-DOH Item 198.6.

Thank you for allowing EAS, Inc. to provide QuES&T, Inc. with professional analytical services. If you have any questions or require additional information or assistance, please feel free to contact me at the number above or e-mail Lab@EASInc.com.

Sincerely,

EASTERN ANALYTICAL SERVICES, INC.

Paul Stascavage Laboratory Director

PS:om

Enclosures

Electronically Transmitted September 23, 2021



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/S. Talsma/L. GoldsteinDate Received :08/14/2021Date Analyzed :08/23/2021Analyzed By :George HtaySignature :Image: Constant of the second seco		Falsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	mber	4189-16	4189-17	4189-18	4189-19
Layer Number					
Lab ID Numbe	r	2780919	2780920	2780921	2780922
Sample Location		Room 105, Sink, On Metal Basin, Black	Room 102, Sink, On Metal Basin, Black	1958 Wing, Room 135, Sink, On Metal Basin, Gray	Room 144, Sink On Metal Basin, Gray
Sample Descrij	ption	Anti-Sweat Tar	Anti-Sweat Tar	Anti-Sweat Tar	Anti-Sweat Tar
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Black	No Yes No Black	No Yes No Gray	No Yes No Gray
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	39.4	37.6	22.4	22.8
Present	% Carbonates	28.5	21.5	33.4	28.6
	% Other Inorganic	32.1	40.9	44.2	48.6

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government. These Results Cannot Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing (Unless "% Other Inorganic", As Reported Ahove, Is Less Than One Percent). This method does not remove verniculite and may underestimate the level of asbestos present in a sample containing greater than 10% verniculite. AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vernont DOH No. AL-709936



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/S.Date Received :08/14/2021Date Analyzed :08/23/2021Analyzed By :George HtaySignature :Image: Collected StructureAnalytical Method :NYS-DOH 1NVLAP Lab Code :101646-0NYS Lab No.10851		Falsma/L. Goldstein 8.6	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-20	4189-20	4189-21	4189-21
Layer Number		1	2	1	2
Lab ID Numbe	r	2780923	2780923	2780924	2780924
Sample Location		Stage, Stair Vestibule, Floor	Stage, Stair Vestibule, Floor	Stage, Stair Vestibule, Floor	Stage, Stair Vestibule, Floor
Sample Description		9" x 9" Floor Tile & Mastic (Tile Layer)	9" x 9" Floor Tile & Mastic (Mastic Layer)	9" x 9" Floor Tile & Mastic (Tile layer)	9" x 9" Floor Tile & Mastic (Mastic Layer)
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Tan	No Yes No Black	No Yes No Tan	No Yes No Black
Asbestos Content	% Amosite % Chrysotile % Other	0.0 3.1 0.0	0.0 0.0 0.0	0.0 2.4 0.0	0.0 0.0 0.0
	% Total Asbestos	3.1	0.0	2.4	0.0
Other Materials	% Organic	22.9	23.9	24.3	26.0
Present	% Carbonates	26.9	23.3	25.4	21.6
	% Other Inorganic	47.1	52.8	47.9	52.4

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government. These Results Cannot Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing (Unless "% Other Inorganic", As Reported Ahove, Is Less Than One Percent). This method does not remove verniculite and may underestimate the level of asbestos present in a sample containing greater than 10% verniculite. AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vernont DOH No. AL-709936



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/SDate Received :08/14/2021Date Analyzed :08/23/2021Analyzed By :George HtaySignature :Image: Collected StructureAnalytical Method :NYS-DOH 1NVLAP Lab Code :101646-0NYS Lab No.10851		Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	mber	4189-22	4189-22	4189-23	4189-23
Layer Number		1	2	1	2
Lab ID Numbe	er	2780925	2780925	2780926	2780926
Sample Location		Room 105, Floor, Light Blue	Room 105, Floor, Light Blue	MODS, Room 167, Floor, On Wood, Light Blue	MODS, Room 167, Floor, On Wood, Light Blue
Sample Description		12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)
Analytical Met	thod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Blue	No Yes No Black	No Yes No Blue	No Yes No Black
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other	% Organic	24.9	65.4	24.9	85.7
Present	% Carbonates	69.6	8.4	69.0	6.6
	% Other Inorganic	5.5	26.2	6.1	7.7

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government. These Results Cannot Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing (Unless "% Other Inorganic", As Reported Ahove, Is Less Than One Percent). This method does not remove verniculite and may underestimate the level of asbestos present in a sample containing greater than 10% verniculite. AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vernont DOH No. AL-709936


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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/S. TalsmaDate Received :08/14/2021Date Analyzed :08/23/2021Analyzed By :George HtaySignature :Image: Collected By: Collected By		Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-24	4189-24	4189-25	4189-25
Layer Number		1	2	1	2
Lab ID Numbe	r	2780927	2780927	2780928	2780928
Sample Locatio	on	1958 Wing, Room 135, Floor, Beige	1958 Wing, Room 135, Floor, Beige	1958 Wing, Room 135, Floor, Beige	1958 Wing, Room 135, Floor, Beige
Sample Description		12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Tan	No Yes No Tan	No Yes No Tan	No Yes No Tan
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other	% Organic	15.7	60.3	15.6	36.5
Present	% Carbonates	83.9	34.3	83.8	25.3
	% Other Inorganic	0.4	5.4	0.6	38.2



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/S.Date Received :08/14/2021Date Analyzed :08/23/2021Analyzed By :George HtaySignature :Image: Collected HtayAnalytical Method :NYS-DOH 11NVLAP Lab Code :101646-0NYS Lab No.10851		Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	mber	4189-26	4189-26	4189-27	4189-27
Layer Number		1	2	1	2
Lab ID Numbe	er	2780929	2780929	2780930	2780930
Sample Locatio	on	MODS, Room 1B, Floor, Dark Blue	MODS, Room 1B, Floor, Dark Blue	MODS, Room 1B, Floor, Dark Blue	MODS, Room 1B, Floor, Dark Blue
Sample Description		12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Blue	No Yes No Black	No Yes No Blue	No Yes No Black
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	19.3	73.1	19.6	57.1
Present	% Carbonates	79.7	12.4	79.4	20.0
	% Other Inorganic	1.0	14.5	1.0	22.9



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Eastern Analytical Services, Inc.

Bulk Sample Results RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received : Date Analyzed Analyzed By : Signature : Analytical Meth NVLAP Lab Co NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 08/23/2021 George Htay mod : NYS-DOH 19 ode : 101646-0 10851	Falsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nun	nber	4189-28	4189-28	4189-29	4189-29
Layer Number		1	2	1	2
Lab ID Number	r	2780931	2780931	2780932	2780932
Sample Locatio	n	MODS, Hallway, Floor, Tan	MODS, Hallway, Floor, Tan	MODS, Hallway, Floor, Tan	MODS, Hallway, Floor, Tan
Sample Description		12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)
Analytical Meth	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Beige	No Yes No Beige	No Yes No Beige	No Yes No Beige
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	25.2	50.9	25.8	54.7
Present	% Carbonates	48.4	23.0	50.0	16.8
	% Other Inorganic	26.4	26.1	24.2	28.5



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Me NVLAP Lab O NYS Lab No.	1: 08/12/2021 N. Salerno/S. 7 1: 08/14/2021 1: 08/23/2021 George Htay thod : NYS-DOH 19 Code : 101646-0 10851	Talsma/L. Goldstein 8.6	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nu	mber	4189-30	4189-30	4189-31	4189-31
Layer Number		1	2	1	2
Lab ID Numb	er	2780933	2780933	2780934	2780934
Sample Location		Room 131, Partition Wall, On CMU, Brown	Room 131, Partition Wall, On CMU, Brown	Room 130, Partition Wall, On Sheetrock, Brown	Room 130, Partition Wall, On Sheetrock, Brown
Sample Description		Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)	Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)
Analytical Me	thod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous	No Yes	No Yes	No Yes	No Yes
	Color	Brown	Beige	Brown	Beige
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other	% Organic	56.5	56.4	55.4	49.5
Present	% Carbonates	41.0	23.6	42.4	34.3
	% Other Inorganic	2.5	20.0	2.2	16.2



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/S.Date Received :08/14/2021Date Analyzed :08/23/2021Analyzed By :George HtaySignature :Analytical Method :NVLAP Lab Code :101646-0NYS Lab No.10851		Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-32	4189-32	4189-33	4189-33
Layer Number		1	2	1	2
Lab ID Numbe	r	2780935	2780935	2780936	2780936
Sample Location		Room 105 Closet, Wall, On CMU, Blue	Room 105 Closet, Wall, On CMU, Blue	MODS, Room 167, Wall, On Wood, Blue	MODS, Room 167, Wall, On Wood, Blue
Sample Description		Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)	Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Blue	No Yes No Beige	No Yes No Blue	No Yes No Tan
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	56.7	44.3	57.9	35.5
Present	% Carbonates	41.6	49.5	39.6	29.2
	% Other Inorganic	1.7	6.2	2.5	35.3



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Meth NVLAP Lab Co NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 08/23/2021 George Htay 	Falsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nun	nber	4189-34	4189-34	4189-35	4189-35
Layer Number		1	2	1	2
Lab ID Number	r	2780937	2780937	2780938	2780938
Sample Locatio	n	MODS, Room 1B, Wall, White	MODS, Room 1B, Wall, White	MODS, Room 1B, Wall, White	MODS, Room 1B, Wall, White
Sample Description		Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)	Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)
Analytical Metl	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No White	No Yes No Beige	No Yes No White	No Yes No Beige
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	59.0	43.8	62.3	43.7
Present	% Carbonates	38.6	35.2	33.0	36.6
	% Other Inorganic	2.4	21.0	4.7	19.7



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Metl NVLAP Lab Co NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 08/23/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nun	nber	4189-36	4189-37	4189-38	4189-39
Layer Number					
Lab ID Number	r	2780939	2780940	2780941	2780942
Sample Locatio	n	1958 Wing, Hallway, Ceiling, Above Suspended Ceiling, On Sheetrock	1958 Wing, Hallway, Ceiling, Above Suspended Ceiling, On Sheetrock	MODS, Room 1B Bathroom, Floor, On Wood	MODS, Room 1B Bathroom, Floor, On Wood
Sample Descrip	otion	Glue Dab	Glue Dab	Ceramic Floor Tile, Grout & Mastic (Mastic Layer)	Ceramic Floor Tile, Grout & Mastic (Mastic Layer)
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No Brown	No Yes No Brown	No Yes No Tan	No Yes No Tan
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other	% Organic	55.8	55.5	26.1	81.6
Materials Present	% Carbonates	4.3	1.7	34.3	9.7
	% Other Inorganic	39.9	42.8	39.6	8.7



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Metl NVLAP Lab Co NYS Lab No.	: 08/12/2021 N. Salerno/S. ' : 08/14/2021 : 08/23/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein 8.6	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nun	nber	4189-40	4189-41	4189-42	4189-43
Layer Number					
Lab ID Number	r	2780943	2780944	2780945	2780946
Sample Locatio	n	MODS, Room 1A, Ceiling, On Wood	MODS, Room 1A, Ceiling, On Wood	MODS, Room 1B, Suspended Ceiling	MODS, Room 1B, Suspended Ceiling
Sample Descrip	otion	2' x 12" Ceiling Tile	2' x 12" Ceiling Tile	2' x 4' Ceiling Tile	2' x 4' Ceiling Tile
Analytical Metl	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	Yes No Yes White/Tan	Yes No Yes White/Tan	Yes No Yes Gray/White/Brown	Yes No Yes Gray/White/Brown
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	91.5	91.6	28.1	29.1
Present	% Carbonates	2.7	5.0	38.9	41.3
	% Other Inorganic	5.8	3.4	33.0	29.6



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Meth NVLAP Lab Co NYS Lab No.	: 08/12/2021 N. Salerno/S. ' : 08/14/2021 : 08/23/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nun	nber	4189-44	4189-45	4189-46	4189-47
Layer Number					
Lab ID Number	r	2780947	2780948	2780949	2780950
Sample Locatio	on	1958 Wing, Hallway, Suspended Ceiling	1958 Wing, Hallway, Suspended Ceiling	Room 105, Suspended Ceiling	Room 102, Suspended Ceiling
Sample Description		2' x 4' Dot Speckled Ceiling Tile	2' x 4' Dot Speckled Ceiling Tile	2' x 4' Dot Canyon Ceiling Tile	2' x 4' Dot Canyon Ceiling Tile
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	Yes No Yes White/Beige	Yes No Yes White/Beige	Yes No Yes Tan/Beige	Yes No Yes Tan/Beige
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other	% Organic	23.0	22.9	30.0	28.5
Present	% Carbonates	58.9	59.7	44.0	33.9
	% Other Inorganic	18.1	17.4	26.0	37.6



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Eastern Analytical Services, Inc. **Bulk Sample Results**

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Meth NVLAP Lab Co NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 08/23/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-59	4189-60	4189-71	4189-72
Layer Number					
Lab ID Number	r	2780951	2780952	2780953	2780954
Sample Locatio	on	MODS, Exterior, Wall, On Cement Board	MODS, Exterior, Wall, On Cement Board	MODS Roof, Top, First Layer	MODS Roof, Top, First Layer
Sample Description		Stone Panel	Stone Panel	Modified Roof	Modified Roof
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	Yes No Yes White/Tan/Brown	Yes No Yes White/Tan/Brown	Yes No Yes Black/Brown/Silver	Yes No Yes Black/Brown/Silver
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	25.6	26.1	59.2	57.8
Present	% Carbonates	73.3	71.1	22.5	19.9
	% Other Inorganic	1.1	2.8	18.3	22.3



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 08/23/2021 George Htay thod : NYS-DOH 19 Code : 101646-0 10851	Falsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	mber	4189-75	4189-76	4189-77	4189-77
Layer Number				1	2
Lab ID Numbe	r	2780955	2780956	2780957	2780957
Sample Location		MODS Roof, 3rd Layer, Under Perlite, On Tar/Shingle Layer	MODS Roof, 3rd Layer, Under Perlite, On Tar/Shingle Layer	MODS, 4th Layer, Under Isofoam, On Perilite, Tar on Shingle	MODS, 4th Layer, Under Isofoam, On Perilite, Tar on Shingle
Sample Description		Isofoam	Isofoam	Tar & Shingle Roof Layer (Shingle Layer)	Tar & Shingle Roof Layer (Tar Layer)
Analytical Met	thod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	Yes No Yes Gray/Yellow	Yes No Yes Gray/Yellow	Yes No Yes Black/Brown	No Yes Yes Black
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	91.8	94.1	41.2	92.1
Present	% Carbonates	2.9	2.0	19.1	6.9
	% Other Inorganic	5.3	3.9	39.7	1.0



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/S. TaDate Received :08/14/2021Date Analyzed :08/23/2021Analyzed By :George HtaySignature :Analytical Method :NVLAP Lab Code :101646-0		Falsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
IN I S Lab Ino.	10851				
Sample ID Nur	nber	4189-78	4189-78	4189-81	4189-82
Layer Number		1	2		
Lab ID Numbe	r	2780958	2780958	2780959	2780960
Sample Location		MODS, 4th Layer, Under Isofoam, On Perilite, Tar on Shingle	MODS, 4th Layer, Under Isofoam, On Perilite, Tar on Shingle	MODS Roof, Above Hallway, Roof	MODS Roof, Above Hallway, Roof
Sample Description		Tar & Shingle Roof Layer (Shingle Layer)	Tar & Shingle Roof Layer (Tar Layer)	Hot Mop Roof on Felt	Hot Mop Roof on Felt
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	Yes No Yes Black/Brown	No Yes Yes Black	Yes No Yes Black	Yes No Yes Black
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other	% Organic	59.5	96.5	72.2	81.9
Materials Present	% Carbonates	6.3	3.0	11.7	6.3
	% Other Inorganic	34.2	0.5	16.1	11.8



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By :	I: 08/12/2021 N. Salerno/S. ' : 08/14/2021 I: 08/23/2021 George Htay	08/12/2021 N. Salerno/S. Talsma/L. Goldstein 08/14/2021 08/23/2021 George Htay		QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590			
Analytical Met NVLAP Lab C NYS Lab No.	thod : NYS-DOH 19 Code : 101646-0 10851	NYS-DOH 198.6 101646-0 10851					
Sample ID Nu	mber	4189-85	4189-86	4189-87	4189-88		
Layer Number							
Lab ID Numbe	er	2780961	2780962	2780963	2780964		
Sample Location	on	MODS, Exterior, Behind Siding, Behind Perlite	MODS, Exterior, Behind Siding, Behind Perlite	Exterior, 1958 Wing, Window Wall, Pink	Exterior, 1958 Wing, Window Wall, Pink		
Sample Description		Tar Paper Vapor Barrier	Tar Paper Vapor Barrier	Caulk	Caulk		
Analytical Me	thod	NOB Plm	NOB Plm	NOB Plm	NOB Plm		
Appearance	Layered Homogenous Fibrous Color	No Yes Yes Black	No Yes Yes Black	No Yes No Red	No Yes No Red		
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0		
	% Total Asbestos	0.0	0.0	0.0	0.0		
Other Materials	% Organic	98.3	97.8	75.0	75.1		
Present	% Carbonates	1.2	1.2	21.8	23.6		
	% Other Inorganic	0.5	1.0	3.2	1.3		



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 08/23/2021 George Htay thod : NYS-DOH 19 Code : 101646-0 10851	Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	mber	4189-89	4189-90	4189-91	4189-92
Layer Number					
Lab ID Numbe	er	2780965	2780966	2780967	2780968
Sample Locatio	on	Exterior, 1958 Wing, Stone Panel to Door, Gray	Exterior, 1958 Wing, Stone Panel to Door, Gray	MODS, Exterior, Building to Sidewalk, Gray	MODS, Exterior Building to Sidewalk, Gray
Sample Descrij	ption	Caulk	Caulk	Caulk	Caulk
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No White	No Yes No White	No Yes No Gray	No Yes No Gray
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	73.2	72.7	71.5	71.7
Present	% Carbonates	21.7	19.3	22.7	19.7
	% Other Inorganic	5.1	8.0	5.8	8.6



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 08/23/2021 George Htay hod : NYS-DOH 19 ode : 101646-0 10851	Talsma/L. Goldstein 8.6	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nur	nber	4189-93	4189-94	4189-95	4189-96
Layer Number					
Lab ID Numbe	r	2780969	2780970	2780971	2780972
Sample Locatio	on	Exterior Facade, 1987 Wing, Brick to Louvre, White	Exterior Facade, 1987 Wing, Brick to Louvre, White	Exterior, Window Wall to AC Unit, Clear	Exterior, Window Wall to AC Unit, Clear
Sample Descrip	otion	Caulk	Caulk	Caulk	Caulk
Analytical Met	hod	NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered Homogenous Fibrous Color	No Yes No White/Tan	No Yes No White/Tan	No Yes No White/Clear	No Yes No White/Clear
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	69.0	68.2	66.8	78.5
Present	% Carbonates	23.0	23.0	23.1	8.3
	% Other Inorganic	8.0	8.8	10.1	13.2

Eastern Analytical Services, Inc. Chain of Custody Form

EAS Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12	590		EAS Batch No. Turn-Around: Shipped Via:	2106769 5 Day NY DB004
Analyte:	Grav Plm			State of Origin:	NY
No. of Samples Received:	54			Sample Disposition:	Standard x Return
No. of Samples Analyzed:	54				
Client Project Number/Name:	RE: CPN Q21-4189 - CP. Construction Sampling	L - Vail's Gate Elementary School - Pre-			
Lab ID Numbers:	2780919-2780950;278095 2780958;2780959-278096	51-2780952;2780953-2780954;2780955- 50;2780961-2780966;2780967-2780972			
Collected By:	N. Salerno/S. Talsma/L.		Date:	08/12/2021	
Received By:	Damien Warner	25.112	Date:	08/14/2021	Time: 1504
Logged In By:	Johnathon Lapuebla		Date:	08/17/2021	
Prepped By:	Johnathon Lapuebla		Date:	08/18/2021	
Analyzed By :	George Htay		Date:	08/23/2021	Time: 1510
Re-Analyzed By:			Date:		
Checked By:	Damien Warner	25-112-	Date:	09/23/2021	
E-Transmitted By	7: Damien Warner	25-112-	Date:	09/23/2021	Time: 1449
Logged Out By:			Date:		



Non-Friable Organically Bound (NOB) Materials - This term refers to a wide variety of building materials, such as vinyl or asphalt floor tile, resilient floor covering, mastic, asphalt shingle, roofing material, caulk, putty, etc.. Polarized Light Microscopy (PLM) analysis has limitations when NOB materials are encountered. These limitations, such as the inability to detect thin or extremely short fibers (less than 1 micrometer in length) generated during the milling process and/or the difficulty of separating asbestos fibers and bundles from the resinous matrix, may lead to false negatives or underestimates of the amount of asbestos fibers present in the sample. Recently, NYS DOH added Ceiling Tiles with Cellulose to the list of materials to be analyzed via the NOB methods. For these reasons, when analysis by PLM yields negative results for the presence of asbestos in NOB materials, The State of New York Department of Health (DOH) has issued the following requirements as of April 8, 2011: NOBs and ceiling tiles with cellulose must be analyzed by both of the gravimetric matrix reduction methods (ELAP Item 198.6 and 198.4) to be deemed negative for asbestos.

EAS is approved by the NYS-DOH to perform analysis of NOB materials via Transmission Electron Microscopy (ELAP Item 198.4). The superior resolution of Transmission Electron Microscopy can detect the presence of asbestos fibers well beyond the range of PLM. In addition, the use of selected-area electron diffraction (SAED) and energy-dispersive spectroscopy (EDS) can positively identify asbestos fibers in the sample. NOB samples determined to contain less than 1% asbestos via the TEM method, must also be analyzed via PLM (198.6) to verify the absence of large amphibole fibers which may not have been successfully transferred to the EM Grids.

The State of New Jersey recently adopted amendments to their regulations requiring gravimetric reduction followed by PLM and TEM analysis for NOB building materials. The regulations can be found at http://wd.dol.state.ni.us/labor/lsse/laws/Asbestos law.html#5a39.

Recently (April 3, 2011), Maine DEP revised their regulations to require gravimetric reduction of NOBs https://www1.maine.gov/dep/waste/asbestos/documents/asbbulksampanalysisprotocolsformYenabled.pdf.

Vermiculite - As of July 9, 2013, NYS has issued new guidance on Vermiculite loose bulk materials and insulation materials which contain Vermiculite. The following quotes have been taken from their guidance letter: "If material is attic fill, block fill or other loose bulk vermiculite materials, it must be designated and treated as ACM. No approved analytical method currently exists to reliably confirm such vermiculite material as non-ACM." "Where thermal systems insulation (TSI), *, or other presumed ACM (PACM) or miscellaneous suspect ACM contain 10% vermiculite or less, certified laboratories may use ELAP Certification Manual Item 198.1 to determine the asbestos content of the material. Where TSI, *, or other PACM or miscellaneous suspect ACM contain greater than 10% vermiculite, Item 198.6 may be used to evaluate the asbestos content of the material; provided, however, that any test results using this method must be reported with the following conspicuous disclaimer:"

"This method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite." See the EPA website at https://www.epa.gov/asbestos/protect-your-family-asbestos-contaminated-vermiculite-insulation

* Surfacing Material Containing Vermiculite - As of May 6, 2016, NYS has issued new guidance regarding Surfacing Material containing vermiculite (essentially expanding the previous requirements for spray-on fireproofing to apply to all surfacing materials). If a surfacing material contains *any* vermiculite, it must be analyzed via NYS-DOH Method 198.8 (or RJ Lee Group Method 055) to be deemed negative for asbestos.

Surface Wipe Samples - Due to the fact that a large percentage of asbestos fibers released from deteriorating asbestos-containing materials or from improperly performed abatement activities are on the order of 5 micrometers or less and are near or below the resolution of a Polarized Light Microscope, Eastern Analytical Services, Inc. recommends that negative surface wipe samples be confirmed utilizing Transmission Electron Microscopy.

Point Counting - New York State Department of Health regulations require quantification of asbestos via the "Stratified Point Count" Method for all bulk samples originating from New York State. Please indicate the state of origin on the Chain of Custody form for all samples submitted to the laboratory. There is no additional charge for quantification using this method.

Layered Samples - NESHAP policy regarding layered bulk samples has changed. In the past, laboratories were required to analyze individual layers of multi-layered bulk samples separately, but report the results in terms of quantity of asbestos for the composite sample. This policy change requires that the layers be analyzed separately and reported as such. Additionally, materials are to be characterized as asbestos or non-asbestos based on the results of the individual layers.

As a result of this policy, EAS will be reporting the results of the individual layers of multi-layered bulk samples submitted for asbestos analysis UNLESS COMPOSITE RESULTS ARE SPECIFICALLY REQUESTED BY THE CLIENT. Additional layers for all bulk samples will be billed as separate samples.

If you have any questions concerning the above, please feel free to contact EAS.



Eastern Analytical Services, Inc.

Phone (914) 592-8380

4 Westchester Plaza Elmsford, New York 10523-1610 http://www.EASInc.com Fax (914) 592-8956

September 23, 2021

Mr. Lawrence J. Holzapfel QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling EAS Batch No. 2106770

Dear Mr. Holzapfel:

Enclosed please find the laboratory results for the 46 bulk sample(s) received by Eastern Analytical Services, Inc. August 14, 2021. The analysis was performed in accordance with NYS-DOH Item 198.4.

Thank you for allowing EAS, Inc. to provide QuES&T, Inc. with professional analytical services. If you have any questions or require additional information or assistance, please feel free to contact me at the number above or e-mail Lab@EASInc.com.

Sincerely,

EASTERN ANALYTICAL SERVICES, INC.

Paul Stascavage Laboratory Director

PS:om

Enclosures

Electronically Transmitted September 23, 2021

Eastern Analytical Services, Inc. Bulk Sample Results RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction						
12/202 Salerno 14/202 13-14/2 nest San	1 /S. Talsma/L. Goldstein 1 2021 achez/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls			
S-DOF 646-0 351	H 198.4					
	4189-16	4189-17	4189-18			

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on Sampling

Date Collected Collected By : Date Received : Date Analyzed Analyzed By : Signature : Analytical Meth NVLAP Lab Co NYS Lab No.	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 09/13-14/2021 Ernest Sancher Mod : NYS-DOH 19 ode : 101646-0 10851	Falsma/L. Goldstein z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Nun	nber	4189-16	4189-17	4189-18	4189-19
Layer Number					
Lab ID Number	r	2780919	2780920	2780921	2780922
Sample Locatio	n	Room 105, Sink, On Metal Basin, Black	Room 102, Sink, On Metal Basin, Black	1958 Wing, Room 135, Sink, On Metal Basin, Gray	Room 144, Sink, On Metal Basin, Gray
Sample Descrip	otion	Anti-Sweat Tar	Anti-Sweat Tar	Anti-Sweat Tar	Anti-Sweat Tar
Analytical Meth	nod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	No Yes No Black	No Yes No Black	No Yes No Gray	No Yes No Gray
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	39.4	37.6	22.4	22.8
Present	% Carbonates	28.5	21.5	33.4	28.6
	% Other Inorganic	32.1	40.9	44.2	48.6



Eastern Analytical Services, Inc.

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Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received : Date Analyzed Analyzed By : Signature :	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 09/13-14/2021 Ernest Sanche:	Talsma/L. Goldstein z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Analytical Meth NVLAP Lab Co NYS Lab No.	hod : NYS-DOH 19 ode : 101646-0 10851	8.4			
Sample ID Nun	nber	4189-20	4189-21	4189-22	4189-22
Layer Number		2	2	1	2
Lab ID Number	r	2780923	2780924	2780925	2780925
Sample Locatio	m	Stage, Stair Vestibule, Floor	Stage, Stair Vestibule, Floor	Room 105, Floor, Light Blue	Room 105, Floor, Light Blue
Sample Descrip	otion	9" x 9" Floor Tile & Mastic (Mastic Layer)	9" x 9" Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)
Analytical Meth	hod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	No Yes No Black	No Yes No Black	No Yes No Blue	No Yes No Black
Asbestos Content	% Amosite % Chrysotile % Other	0.0 7.9 0.0	0.0 10.5 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	7.9	10.5	0.0	0.0
Other Materials	% Organic	23.9	26.0	24.9	65.4
Present	% Carbonates	23.3	21.6	69.6	8.4
	% Other Inorganic	44.9	41.9	5.5	26.2



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Eastern Analytical Services, Inc. Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature :	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 09/13-14/2021 Ernest Sanchez	08/12/2021 N. Salerno/S. Talsma/L. Goldstein 08/14/2021 09/13-14/2021 Ernest Sanchez/Fahrudin Lalic		QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Analytical Met NVLAP Lab C NYS Lab No.	hod : NYS-DOH 19 ode : 101646-0 10851	8.4			
Sample ID Nur	nber	4189-23	4189-23	4189-24	4189-25
Layer Number		1	2	2	2
Lab ID Numbe	r	2780926	2780926	2780927	2780928
Sample Locatio	on	MODS, Room 167, Floor, On Wood, Light Blue	MODS, Room 167, Floor, On Wood, Light Blue	1958 Wing, Room 135, Floor, Beige	1958 Wing, Room 135, Floor, Beige
Sample Description		12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)
Analytical Met	hod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	No Yes No Blue	No Yes No Black	No Yes No Tan	No Yes No Tan
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 < 0.4 0.0
	% Total Asbestos	0.0	0.0	0.0	< 0.4
Other Materials	% Organic	24.9	85.7	60.3	36.5
Present	% Carbonates	69.0	6.6	34.3	25.3
	% Other Inorganic	6.1	7.7	5.4	38.2



Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature :	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 09/13-14/2021 Ernest Sancher	Talsma/L. Goldstein z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Analytical Met NVLAP Lab C NYS Lab No.	hod : NYS-DOH 19 ode : 101646-0 10851	8.4			
Sample ID Nur	mber	4189-26	4189-27	4189-28	4189-28
Layer Number		2	2	1	2
Lab ID Numbe	7	2780929	2780930	2780931	2780931
Sample Locatio	on	MODS, Room 1B, Floor, Dark Blue	MODS, Room 1B, Floor, Dark Blue	MODS, Hallway, Floor, Tan	MODS, Hallway, Floor, Tan
Sample Description		12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)
Analytical Met	hod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	No Yes No Black	No Yes No Black	No Yes No Beige	No Yes No Beige
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 13.2 0.0	0.0 5.2 0.0
	% Total Asbestos	0.0	0.0	13.2	5.2
Other Materials	% Organic	73.1	57.1	25.2	50.9
Present	% Carbonates	12.4	20.0	48.4	23.0
	% Other Inorganic	14.5	22.9	13.2	20.9

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government. AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

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Eastern Analytical Services, Inc.

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Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature :	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 09/13-14/2021 Ernest Sanche	Talsma/L. Goldstein z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Analytical Meth NVLAP Lab Co NYS Lab No.	hod : NYS-DOH 19 ode : 101646-0 10851	8.4			
Sample ID Nun	nber	4189-29	4189-29	4189-30	4189-30
Layer Number		1	2	1	2
Lab ID Number	r	2780932	2780932	2780933	2780933
Sample Locatio	m	MODS, Hallway, Floor, Tan	MODS, Hallway, Floor, Tan	Room 131, Partition Wall, On CMU, Brown	Room 131, Partition Wall, On CMU, Brown
Sample Descrip	otion	12' x 12' Floor Tile & Mastic (Tile Layer)	12' x 12' Floor Tile & Mastic (Mastic Layer)	Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)
Analytical Metl	hod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	No Yes No Beige	No Yes No Beige	No Yes No Brown	No Yes No Beige
Asbestos Content	% Amosite % Chrysotile % Other	0.0 12.1 0.0	0.0 8.5 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	12.1	8.5	0.0	0.0
Other Materials	% Organic	25.8	54.7	56.5	56.4
Present	% Carbonates	50.0	16.8	41.0	23.6
	% Other Inorganic	12.1	20.0	2.5	20.0



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Eastern Analytical Services, Inc. Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

1.0					
Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature :	: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 : 09/13-14/2021 Ernest Sanche:	Falsma/L. Goldstein z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Analytical Met NVLAP Lab C NYS Lab No.	hod : NYS-DOH 19 ode : 101646-0 10851	8.4			
Sample ID Nur	nber	4189-31	4189-31	4189-32	4189-32
Layer Number		1	2	1	2
Lab ID Number	r	2780934	2780934	2780935	2780935
Sample Locatio	on	Room 130, Partition Wall, On Sheetrock, Brown	Room 130, Partition Wall, On Sheetrock, Brown	Room 105 Closet, Wall, On CMU, Blue	Room 105 Closet, Wall, On CMU, Blue
Sample Descrip	otion	Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)	Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)
Analytical Met	hod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	No Yes No Brown	No Yes No Beige	No Yes No Blue	No Yes No Beige
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 < 0.2 0.0	0.0 0.0 0.0	0.0 < 0.1 0.0
	% Total Asbestos	0.0	< 0.2	0.0	< 0.1
Other Materials	% Organic	55.4	49.5	56.7	44.3
Present	% Carbonates	42.4	34.3	41.6	49.5
	% Other Inorganic	2.2	16.2	1.7	6.2



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Eastern Analytical Services, Inc. Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected Collected By : Date Received Date Analyzed Analyzed By : Signature : Analytical Met NVLAP Lab C	 1: 08/12/2021 N. Salerno/S. 7 : 08/14/2021 1: 09/13-14/2021 Ernest Sanches Ernest Sanches Ernest Sanches Ethod : NYS-DOH 19 Code : 101646-0 	08/12/2021 N. Salerno/S. Talsma/L. Goldstein 08/14/2021 09/13-14/2021 Ernest Sanchez/Fahrudin Lalic		QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590		
NYS Lab No.	10851					
Sample ID Nu	mber	4189-33	4189-33	4189-34	4189-34	
Layer Number		1	2	1	2	
Lab ID Numbe	er	2780936	2780936	2780937	2780937	
Sample Location	on	MODS, Room 167, Wall, On Wood, Blue	MODS, Room 167, Wall, On Wood, Blue	MODS, Room 1B, Wall, White	MODS, Room 1B, Wall, White	
Sample Description		Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)	Cove Base Molding & Adhesive (Molding Layer)	Cove Base Molding & Adhesive (Adhesive Layer)	
Analytical Met	thod	NOB Tem	NOB Tem	NOB Tem	NOB Tem	
Appearance	Layered Homogenous Fibrous Color	No Yes No Blue	No Yes No Tan	No Yes No White	No Yes No Beige	
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	
	% Total Asbestos	0.0	0.0	0.0	0.0	
Other Materials	% Organic	57.9	35.5	59.0	43.8	
Present	% Carbonates	39.6	29.2	38.6	35.2	
	% Other Inorganic	2.5	35.3	2.4	21.0	

EAS Batch No. 2106770 Page 8 of 16 Eastern Analytical Services, Inc. **Bulk Sample Results** RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling Client OuES&T. Inc. Date Collected : 08/12/2021 1376 Route 9 Collected By : N. Salerno/S. Talsma/L. Goldstein Wappingers Falls, NY 12590 Date Received : 08/14/2021 Date Analyzed : 09/13-14/2021 Analyzed By : Ernest Sanchez/Fahrudin Lalic Ement Sunday Signature : Analytical Method: NYS-DOH 198.4 NVLAP Lab Code: 101646-0 NYS Lab No. 10851 Sample ID Number 4189-35 4189-35 4189-36 4189-37 Layer Number 1 2 Lab ID Number 2780938 2780938 2780940 2780939 Sample Location MODS, Room 1B, MODS, Room 1B, 1958 Wing, 1958 Wing, Wall, White Wall, White Hallway, Ceiling, Hallway, Ceiling, Above Suspended Above Suspended Ceiling, On Ceiling, On Sheetrock Sheetrock Glue Dab Glue Dab Sample Description Cove Base Molding Cove Base Molding & Adhesive & Adhesive (Molding Layer) (Adhesive Layer) NOB Tem NOB Tem NOB Tem NOB Tem Analytical Method Layered No No Appearance No No Homogenous Yes Yes Yes Yes Fibrous No No No No White Color Beige Brown Brown 0.0 % Amosite 0.0 0.0 0.0 Asbestos Content % Chrysotile 0.0 0.0 0.0 0.0 % Other 0.0 0.0 0.0 0.0 % Total Asbestos 0.0 0.0 0.0 0.0 Other % Organic 62.3 43.7 55.8 55.5 Materials Present 1.7 % Carbonates 33.0 36.6 4.3 % Other Inorganic 4.7 19.7 39.9 42.8

EAS Batch No. 2106770 Page 9 of 16 Eastern Analytical Services, Inc. **Bulk Sample Results** RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling Client OuES&T. Inc. Date Collected : 08/12/2021 1376 Route 9 Collected By : N. Salerno/S. Talsma/L. Goldstein Wappingers Falls, NY 12590 Date Received : 08/14/2021 Date Analyzed : 09/13-14/2021 Analyzed By : Ernest Sanchez/Fahrudin Lalic Ement Sunday Signature : Analytical Method: NYS-DOH 198.4 NVLAP Lab Code: 101646-0 NYS Lab No. 10851 Sample ID Number 4189-38 4189-39 4189-40 4189-41 Layer Number Lab ID Number 2780942 2780944 2780941 2780943 Sample Location MODS, Room 1B MODS, Room 1B MODS, Room 1A, MODS, Room 1A, Bathroom, Floor, Bathroom, Floor, Ceiling, On Wood Ceiling, On Wood On Wood On Wood 2' x 12" Ceiling Tile Sample Description Ceramic Floor Tile, Ceramic Floor Tile, 2' x 12" Ceiling Tile Grout & Mastic Grout & Mastic (Mastic Layer) (Mastic Layer) NOB Tem NOB Tem NOB Tem NOB Tem Analytical Method Layered No Yes Yes Appearance No Homogenous Yes Yes No No Fibrous No Yes Yes No White/Tan White/Tan Color Tan Tan 0.0 % Amosite 0.0 0.0 0.0 Asbestos Content % Chrysotile 0.0 0.0 0.0 0.0 % Other 0.0 0.0 0.0 0.0 % Total Asbestos 0.0 0.0 0.0 0.0 91.5 91.6 Other % Organic 26.1 81.6 Materials Present 34.3 9.7 2.7 5.0 % Carbonates % Other Inorganic 39.6 8.7 5.8 3.4

		-			
EAS Batch No.	Page 10 of 16				
			jj		
Date Collecte Collected By Date Received Date Analyze Analyzed By Signature	d : 08/12/2021 : N. Salerno/S. d : 08/14/2021 d : 09/13-14/2021 : Ernest Sanche	Talsma/L. Goldstein l z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Analytical Mo NVLAP Lab NYS Lab No.	ethod : NYS-DOH 19 Code : 101646-0 . 10851	18.4			
Sample ID N	umber	4189-42	4189-43	4189-44	4189-45
Layer Number					
Lab ID Numb	ber	2780945	2780946	2780947	2780948
Sample Locat	tion	MODS, Room 1B, Suspended Ceiling	MODS, Room 1B, Suspended Ceiling	1958 Wing, Hallway, Suspended Ceiling	1958 Wing, Hallway, Suspended Ceiling
Sample Desci	ription	2' x 4' Ceiling Tile	2' x 4' Ceiling Tile	2' x 4' Dot Speckled Ceiling Tile	2' x 4' Dot Speckled Ceiling Tile
Analytical Me	ethod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	Yes	Yes	Yes	Yes
	Homogenous Fibrous Color	No Yes Gray/White/Brown	No Yes Gray/White/Brown	No Yes White/Beige	No Yes White/Beige
Asbestos	% Amosite	0.0	0.0	0.0	0.0
Content	% Chrysotile % Other	0.0	0.0	0.0	0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other	% Organic	28.1	29.1	23.0	22.9
Present	% Carbonates	38.9	41.3	58.9	59.7
	% Other Inorganic	33.0	29.6	18.1	17.4

EAS



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Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected : Collected By : Date Received : Date Analyzed : Analyzed By : Signature : Analytical Meth NVLAP Lab Co NYS Lab No.	08/12/2021 N. Salerno/S. 7 08/14/2021 09/13-14/2021 Ernest Sanche: 	Falsma/L. Goldstein z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Num	lber	4189-46	4189-47	4189-59	4189-60
Layer Number					
Lab ID Number		2780949	2780950	2780951	2780952
Sample Location		Room 105, Suspended Ceiling	Room 102, Suspended Ceiling	MODS, Exterior, Wall, On Cement Board	MODS, Exterior, Wall, On Cement Board
Sample Descrip	tion	2' x 4' Dot Canyon Ceiling Tile	2' x 4' Dot Canyon Ceiling Tile	Stone Panel	Stone Panel
Analytical Meth	od	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	Yes No Yes Tan/Beige	Yes No Yes Tan/Beige	Yes No Yes White/Tan/Brown	Yes No Yes White/Tan/Brown
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	30.0	28.5	25.6	26.1
Present	% Carbonates	44.0	33.9	73.3	71.1
	% Other Inorganic	26.0	37.6	1.1	2.8

		-			
EAS Batch No. 2106770 Eastern Analytical Services, Inc.					
		В	ulk Sample Results		
	RE: CPN	Q21-4189 - CPL - Vail's	Gate Elementary School	l - Pre-Construction Sampling	
Date Collected :08/12/2021Collected By :N. Salerno/SDate Received :08/14/2021Date Analyzed :09/13-14/2021		Talsma/L. Goldstein	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Analyzed By Signature : Analytical M NVLAP Lab NYS Lab No	: Ernest Sanche ethod : NYS-DOH 19 Code : 101646-0 . 10851	8.4			
Sample ID N	umber	4189-71	4189-72	4189-75	4189-76
Layer Number					
Lab ID Numb	ber	2780953	2780954	2780955	2780956
Sample Locat	tion	MODS Roof, Top, First Layer	MODS Roof, Top, First Layer	MODS Roof, 3rd Layer, Under Perlite, On Tar/Shingle Layer	MODS Roof, 3rd Layer, Under Perlite, On Tar/Shingle Layer
Sample Desci	ription	Modified Roof	Modified Roof	Isofoam	Isofoam
Analytical M	ethod	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	Yes	Yes	Yes	Yes
	Homogenous	No	No	No	No
	Fibrous Color	Yes Black/Brown/Silver	Yes Black/Brown/Silver	Yes Gray/Yellow	Yes Gray/Yellow
Asbestos Content	% Amosite % Chrysotile	0.0 0.0	0.0	0.0 0.0	0.0
	% Other	0.0	0.0	0.0	0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	59.2	57.8	91.8	94.1
Present	% Carbonates	22.5	19.9	2.9	2.0
	% Other Inorganic	18.3	22.3	5.3	3.9

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Eastern Analytical Services, Inc. Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected :08/12/2021Collected By :N. Salerno/SDate Received :08/14/2021Date Analyzed :09/13-14/20Analyzed By :Ernest SanceSignature :Image: Collected Signature :Analytical Method :NYS-DOHNVLAP Lab Code :101646-0NYS Lab No.10851		Falsma/L. Goldstein z/Fahrudin Lalic 8.4	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590	
Sample ID Num	ber	4189-77	4189-78	4189-81	4189-82
Layer Number		1	1		
Lab ID Number		2780957	2780958	2780959	2780960
Sample Location		MODS, 4th Layer, Under Isofoam, On Perilite, Tar on Shingle	MODS, 4th Layer, Under Isofoam, On Perilite, Tar on Shingle	MODS Roof, Above Hallway, Roof	MODS Roof, Above Hallway, Roof
Sample Descrip	tion	Tar & Shingle Roof Layer (Shingle Layer)	Tar & Shingle Roof Layer (Shingle Layer)	Hot Mop Roof on Felt	Hot Mop Roof on Felt
Analytical Meth	od	NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered Homogenous Fibrous Color	Yes No Yes Black/Brown	Yes No Yes Black/Brown	Yes No Yes Black	Yes No Yes Black
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0
	% Total Asbestos	0.0	0.0	0.0	0.0
Other Materials	% Organic	41.2	59.5	72.2	81.9
Present	% Carbonates	19.1	6.3	11.7	6.3
	% Other Inorganic	39.7	34.2	16.1	11.8

		-		
EAS Batch No. 210677	0 RE: CPN	Eastern A B Q21-4189 - CPL - Vail's	Charles Servic Sulk Sample Results Solution School	es, Inc. ol - Pre-Construction Sampling
Date Collected : Collected By : Date Received : Date Analyzed : Analyzed By :	08/12/2021 N. Salerno/S. Talsma/L. Goldstein 08/14/2021 09/13-14/2021 Ernest Sanchez/Fahrudin Lalic		Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590
Analytical Method : NVLAP Lab Code : NYS Lab No.	NYS-DOH 19 101646-0 10851	98.4		
Sample ID Number		4189-87	4189-88	4189-89
Layer Number				
Lab ID Number		2780963	2780964	2780965
Sample Location		Exterior, 1958 Wing, Window Wall, Pink	Exterior, 1958 Wing, Window Wall, Pink	Exterior, 1958 Wing, Stone Panel to Door, Gray
Sample Description		Caulk	Caulk	Caulk
Analytical Method		NOB Tem	NOB Tem	NOB Tem
Appearance Laye	ered	No	No	No

Other

% Other Inorganic

3.2

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4189-90

2780966

Caulk

NOB Tem

No

Yes

No

White

0.0

0.0

0.0

0.0

72.7

19.3

8.0

Exterior, 1958 Wing, Stone Panel to Door, Gray

Appearanc Homogenous Yes Yes Yes Fibrous No No No Color Red Red White 0.0 0.0 0.0 Asbestos % Amosite Content % Chrysotile 0.0 0.0 0.0 % Other 0.0 0.0 0.0 % Total Asbestos 0.0 0.0 0.0 % Organic 75.0 75.1 73.2 Materials Present 21.7 % Carbonates 21.8 23.6

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government. AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

1.3

5.1

EAS Batch No. 2106770 Page 15 of 16 Eastern Analytical Services, Inc. **Bulk Sample Results** RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling Client OuES&T. Inc. Date Collected : 08/12/2021 1376 Route 9 Collected By : N. Salerno/S. Talsma/L. Goldstein Wappingers Falls, NY 12590 Date Received : 08/14/2021 Date Analyzed : 09/13-14/2021 Analyzed By : Ernest Sanchez/Fahrudin Lalic Ement Sunday Signature : Analytical Method: NYS-DOH 198.4 NVLAP Lab Code: 101646-0 NYS Lab No. 10851 Sample ID Number 4189-91 4189-92 4189-93 4189-94 Layer Number Lab ID Number 2780969 2780970 2780967 2780968 Sample Location MODS, Exterior, MODS, Exterior, Exterior Facade, Exterior Facade, Building to 1987 Wing, Brick to 1987 Wing, Brick to Building to Louvre, White Sidewalk, Gray Louvre, White Sidewalk, Gray Sample Description Caulk Caulk Caulk Caulk NOB Tem NOB Tem NOB Tem NOB Tem Analytical Method Layered No Appearance No No No Homogenous Yes Yes Yes Yes Fibrous No No No No White/Tan White/Tan Color Gray Gray 0.0 % Amosite 0.0 0.0 0.0 Asbestos Content % Chrysotile 0.0 0.0 0.0 0.0 % Other 0.0 0.0 0.0 0.0 % Total Asbestos 0.0 0.0 0.0 0.0 Other % Organic 71.5 71.7 69.0 68.2 Materials Present 22.7 19.7 23.0 % Carbonates 23.0 % Other Inorganic 5.8 8.0 8.8 8.6



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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN Q21-4189 - CPL - Vail's Gate Elementary School - Pre-Construction Sampling

Date Collected : Collected By : Date Received : Date Analyzed : Analyzed By : Signature :	08/12/2021 N. Salerno/S. 7 08/14/2021 09/13-14/2021 Ernest Sanche:	Falsma/L. Goldstein z/Fahrudin Lalic	Client	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12590
Analytical Metho NVLAP Lab Coo NYS Lab No.	od : NYS-DOH 19 de : 101646-0 10851	8.4		
Sample ID Num	ber	4189-95	4189-96	
Layer Number				
Lab ID Number		2780971	2780972	
Sample Location		Exterior, Window Wall to AC Unit, Clear	Exterior, Window Wall to AC Unit, Clear	
Sample Descript	ion	Caulk	Caulk	
Analytical Metho	bd	NOB Tem	NOB Tem	
Appearance I H H	Layered Homogenous Fibrous Color	No Yes No White/Clear	No Yes No White/Clear	
Asbestos Content	% Amosite % Chrysotile % Other	0.0 0.0 0.0	0.0 0.0 0.0	
0	% Total Asbestos	0.0	0.0	
Other 9 Materials	% Organic	66.8	78.5	
Present	% Carbonates	23.1	8.3	
9	% Other Inorganic	10.1	13.2	

Eastern Analytical Services, Inc. **Chain of Custody Form**

EAS Client:	QuES&T, Inc. 1376 Route 9 Wappingers Falls, NY 12	590		EAS Batch No. Turn-Around: Shipped Via:	2106770 Five Day
Analyte:	Grav Tem			State of Origin:	NY
No. of Samples Received:	54			Sample Disposition:	Standard x Return
No. of Samples Analyzed:	46				
Client Project Number/Name:	RE: CPN Q21-4189 - CPI Construction Sampling	L - Vail's Gate Elementary School - Pre-			
Lab ID Numbers:	2780919-2780950;278095 2780958;2780959-278096	1-2780952;2780953-2780954;2780955- 0;2780961-2780966;2780967-2780972			
Collected By:	N. Salerno/S. Talsma/L.		Date:	08/12/2021	
Received By:	Damien Warner	DEM	Date:	08/14/2021	Time: 1504
Logged In By:	Johnathon Lapuebla		Date:	08/17/2021	
Prepped By:	Joseph B. LaPuebla	gres. Lyc	Date:	09/08/2021	
Analyzed By :	Ernest Sanchez Fahrudin Lalic	Find finding	Date:	09/13-14/2021	Time: 1200
Re-Analyzed By:			Date:		
Checked By:	Damien Warner	DE Ma	Date:	09/23/2021	
E-Transmitted By	r: Damien Warner	QE M	Date:	09/23/2021	Time: 1449
Logged Out By:			Date:		

Date:

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: CPL			SAMPLED BY:	N. Salerno, S. Talsma, L.C	loldstein
ADDRESS: 50 Front Str	reet, Suite 202		DATE SAMPLED:	12-Aug-21	
Newburgh, NY 12550		s	TATE SAMPLED:	NY	
			-	PLM/PLM-NOB/QTEM as	
CONTACT: Lauren Tars	sio	ANA	ALYSIS METHOD:	required	
PROJECT ID: Vail's Gate	Elementary School	TUR	N-AROUND TIME:	HOURS	
Pre-Constru	uction Sampling			5 DAYS	
PROJECT # : Q21-4189				OTHER	
For Samp	eles Containing Vermic	ulite, Please Contac	t Igoldstein@q	ualityenv.com for Appro	COMMENTS
LAB#	LOCA		SAMIF	LE DESCRIPTION	
4189-01	Boiler Room Pipe Tunn	el, on Metal Pipe	Thermal S	Systems Insulation	
4189-02	Boiler Room Pipe Tunn	el, on Metal Pipe	Thermal	Systems Insulation	
4189-03	Boiler Room Pipe Tunn	el, on Metal Pipe	Thermal	Systems Insulation	
4189-04	Boiler Room Pipe Tunn Elbow	el, on Metal Pipe	Mudde	ed Joint Packing	
4189-05	Boiler Room Pipe Tunn Elbow	el, on Metal Pipe	Mudde	ed Joint Packing	
4189-06	Boiler Room Pipe Tunn Elbow	el, on Metal Pipe	Mudde	ed Joint Packing	
4189-07	Room 130, Partition Wa	all, on Sheetrock	liot	nt Compound	
4189-08	Room 130, Partition W	all, on Sheetrock	Joi	nt Compound	
4189-09	Room 130, Partition W	all, on Sheetrock	Joi	nt Compound	
4189-10	Room 132 (IT Room), F	Partition Wall		Sheetrock	
For Samp	oles Containing Vermic	culite, Please Contac	t Igoldstein@c	ualityenv.com for Appre	oval
CHAIN OF CUSTODY (SE	E LAST PAGE				
SUBMITTED BY	hdas Salim	DATE:	8/13/2021		
	Monon	DATE:		AUG AUG	21 15:64
		-		PAGE_1_OF_10_	
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		SAMPLED BY: N. Salerno, S. Talsma, L.	Soldstein
ADDRESS: 50 Front S	treet, Suite 202	DATE SAMPLED: 12-Aug-21	
Newburgh,	NY 12550		
CONTACT: Lauran Ta	rsio AN	PLM/PLM-NOB/QTEM as ALYSIS METHOD: required	
DROJECT ID: Vail's Gate	a Elementary School TIP		
PROJECT ID: Vali S Gate	ruction Sampling	5 DAYS	
PRO JECT # - 021-4189			
For Sam	ples Containing Vermiculite, Please Contac	ct Igoldstein@qualityenv.com for Appre	oval
SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
4189-11	Room 130, Partition Wall	Sheetrock	
4189-12	Hall, Ceiling, Above Suspended Ceiling	Sheetrock	
4189-13	Hall, Ceiling, Above Suspended Ceiling	Sheetrock	
4189-14	Room 139, Partition Wall	CMU & Mortar (Please Separate)	
4189-15	Boiler Room Near Mods, Perimeter Wall	CMU & Mortar (Please Separate)	
4189-16 2780919	Room 105, Sink, on Metal Basin, Black	Anti-Sweat Tar	
4189-17 2780920	Room 102, Sink, on Metal Basin, Black	Anti-Sweat Tar	
4189-18 2780921	1958 Wing, Room 135, Sink, on Metal Basin, Gray	Anti-Sweat Tar	
4189-19 2780922	Room 144, Sink, on Metal Basin, Gray	Anti-Sweat Tar	
4189 <u>-20</u> 2780923	Stage, Stair Vestibule, Floor	9"x9" Floor Tile & Mastic (Please Separate)	
For Sam	ples Containing Vermiculite, Please Conta	ct Igoldstein@qualityenv.com for Appr	oval
SUBMITTED BY:	e las pages dudus Antimus DATE:	8/13/2021	
	MANNE DATE	AUG AUG	21 15:04
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CLIENT: CPL		SAMPLED BY: N. Salerno, S. Talsma, L.C	Soldstein
ADDRESS: 50 Front S	treet, Suite 202	DATE SAMPLED: 12-Aug-21	
Newburgh	, NY 12550 S	STATE SAMPLED: NY	
CONTACT: Lauren Ta	rsio AN/	PLM/PLM-NOB/QTEM as ALYSIS METHOD: required	
PROJECT ID: Vail's Gate	a Elementary School TUR	N-AROUND TIME: HOURS	
Pre-Const	ruction Sampling	5 DAYS	
PROJECT #: Q21-4189		OTHER	
For Sam	ples Containing Vermiculite, Please Contac	t Igoldstein@qualityenv.com for Appro	oval
LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
4189-21	Stage, Stair Vestibule, Floor	9"x9" Floor Tile & Mastic	
2780924		(Please Separate)	
4189-22	Room 105, Floor, Light Blue	12'x12' Floor Tile & Mastic	
2780925		(Please Separate)	
4189-23	MODS, Room 167, Floor, on Wood, Light	12'x12' Floor Tile & Mastic	
2780926	Blue	(Please Separate)	
4189-24	1958 Wing, Room 135, Floor, Beige	12'x12' Floor Tile & Mastic	
2780927		(Please Separate)	
4189-25	1958 Wing, Room 135, Floor, Beige	12'x12' Floor Tile & Mastic	
2780928		(Please Separate)	
4189-26	MODS, Room 1B, Floor, Dark Blue	12'x12' Floor Tile & Mastlc	
2780929		(Please Separate)	
4189-27	MODS, Room 1B, Floor, Dark Blue	12'x12' Floor Tile & Mastic	
2780930		(Please Separate)	
4189-28	MODS, Hallway, Floor, Tan	12'x12' Floor Tile & Mastic	
2780931	· · · · · · · · · · · · · · · · · · ·	(Please Separate)	
4189-29	MODS, Hallway, Floor, Tan	12'x12' Floor Tile & Mastic	
2780932		(Please Separate)	
4189-30	Room 131, Partition Wall, on CMU, Brown	Cove Base Molding & Adhesive	
2780933		(Please Separate)	
For Sam CHAIN OF CUSTODY (S	ples Containing Vermiculite, Please Contac EE LAST PAGE)	t Igoldstein@qualityenv.com for Appro	oval
SUBMITTED BY:	Andre Adurna DATE:	8/13/2021	
	11411 DATE:	RAS AND	21 15:04
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BULK SAMPLE FORM

	·	SAMPLED BY: <u>N. Salerno, S. Talsma, L</u>	Goldstein			
ADDRESS: 50 Front S	treet. Suite 202	DATE SAMPLED: 12-Aug-21				
Newburgh	NY 12550		-			
ttottodigit	, 11 12000	PLM/PLM-NOB/QTEM as	-			
CONTACT: Lauren Ta	o ANALYSIS METHOD: required					
PROJECT ID: Vail's Gate	e Elementary School TUR	N-AROUND TIME: HOURS				
Pre-Const	ruction Sampling	5DAYS				
PROJECT #: Q21-4189		OTHER				
For Sam	ples Containing Vermiculite, Please Contac	ct lgoldstein@qualityenv.com for App	roval			
SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS			
4189-31	Room 130, Partition Wall, on Sheetrock,	Cove Base Molding & Adhesive				
2780934	Brown	(Please Separate)				
			4			
4189-32	Room 105 Closet, Wall, on CMU, Blue	Cove Base Molding & Adhesive				
2780935		(Please Separate)				
4189-33	MODS, Room 167, wall, on Wood, Blue	Cove Base Molding & Adhesive				
2780936		(Please Separate)				
			1			
4189-34	MODS, Room 1B, Wall, White	II, White Cove Base Molding & Adhesive (Please Separate)				
2780937		(Please Separate)	j			
4189-35	MODS, Room 1B, Wall, White	Cove Base Molding & Adhesive				
2780938	-	(Please Separate)				
4189-36	1958 Wing, Hallway, Ceiling, Above	Glue Dab				
2780939	Suspended Ceiling, on Sheetrock					
			-			
4189-37	1958 Wing, Hallway, Ceiling, Above	Glue Dab				
2780940	Suspended Celling, on Sheetrock					
4189-38	MODS, Room 1B Bathroom, Floor, on	Ceramic Floor Tile, Grout & Mastic				
2780941	Wood	(Please Separate)				
4189-39	MODS, Room 1B Bathroom, Floor, on	Ceramic Floor Tile, Grout & Mastic				
2780942	Wood	(Please Separate)				
4189-40	MODS, Room 1A, Ceiling, on Wood	2'x12' Ceiling Tile				
2780943						
For Sam	ples Containing Vermiculite, Please Conta	ct Igoldstein@qualityenv.com for App	roval			
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SUBMITTED BY: De LIMAN **__**__

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DATE: 8/13/2021

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		SAMPLED BY: <u>N. Salerno, S. Talsma, L.</u>	Goldstein
ADDRESS: 50 Front St	reet, Suito 202	DATE SAMPLED: 12-Aug-21	
Newburgh,	NY 12550 S	STATE SAMPLED: NY	
CONTACT: Lauren Tar	sio AN	PLM/PLM-NOB/QTEM as ALYSIS METHOD: required	
PROJECT ID: Vail's Gate	Elementary School TUR	N-AROUND TIME: HOURS	
Pre-Constr	uction Sampling	5 DAYS	
PROJECT #: Q21-4189	los Containing Vermiculita, Blassa Contes	OTHER	aval
SAMPLE #	LOCATION	SAMPLE DESCRIPTION	COMMENTS
LAB#			
4189-41	MODS, Room 1A, Ceiling, on Wood	2'x12' Ceiling Tile	
2780944			
4189-42	MODS Room 1B Suspended Ceiling	2'x4' Ceiling Tile	
2780945		2.41 00000 9 110	
4189-43	MODS, Room 1B, Suspended Ceiling	2'x4' Ceiling Tile	
2780946			
4189-44	1958 Wing, Hallway, Suspended Ceiling	2'x4' Dot Speckled Ceiling Tile	
2780947	,		
4189-45	1958 Wing, Hallway, Suspended Ceiling	2'x4' Dot Speckled Ceiling Tile	
2780948			
4189-46	Room 105, Suspended Ceiling	2'x4' Dot Canyon Ceiling Tile	
2780949			
4189-47	Room 102, Suspended Ceiling	2'x4' Dot Canvon Ceiling Tile	1
2780950	Ĵ		
······			
4189-48	MODS, in Wall, Behind Wall Panels	Fiberglass Insulation	
4189-49	MODS, in Wall, Behind Wall Panels	Fiberglass Insulation	
4400 50	MODE Exterior Linder Mindows on Black	Shinon	
4103-20	NODS, Exterior, Grider Windows, on Block	310000	
For Sam	ples Containing Vermiculite, Please Conta	t Igoldstein@qualityenv.com for Appr	oval
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			SAMPLED BY:	N. Salerno, S. Talsma, L.C	Soldstein
ADDRESS: 50 Front St	reet, Suite 202		DATE SAMPLED:	12-Aug-21	
Newburgh,	NY 12550	s	TATE SAMPLED:	NY	
CONTACT: Lauren Tar	slo	ANA	ALYSIS METHOD:	PLM/PLM-NOB/QTEM as required	
PROJECTID: Vail's Gate	Flementary School	TIR		HOURS	
Pre-Constru	uction Sampling			5 DAYS	
PROJECT # : Q21-4189				OTHER	
For Samp	les Containing Vermic	ulite, Please Contac	t lgoldstein@q	ualityenv.com for Appro	oval
SAMPLE # LAB#	LOCA	TION	SAMF	PLEDESCRIPTION	COMMENTS
4189-51	MODS, Exterior, Under	Windows, on Block		Stucco	
4189-52	MODS, Exterior, Under	Windows, on Block		Stucco	
4189-53	MODS, Exterior, Under	r Windows, on Block		Stucco	
4189-54	MODS, Exterior, Under	r Windows, on Block		Stucco	
4189-55	MODS, Exterior, Under	r Windows, on Block		Stucco	
4189-56	MODS, Exterior, Under	r Windows, on Block		Stucco	
4189-57	MODS, Exterior, Unde	r Windows, on Block		Stucco	
4189-58	MODS, Exterior, Unde	r Windows, on Block		Stucco	
4189-59	MODS, Exterior, Wall,	on Cement Board	5	Stone Panel	
4189-60 2780952	MODS. Exterior, Wall,	on Cement Board	Ę	Stone Panel	
For Sam	ples Containing Vermi	culite, Please Contac	ct Igoldstein@o	qualityenv.com for Appr	oval
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SUBMITTED BY	ales Balin	DATE:	8/13/2021	>	
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CLIENT: CPL			SAMPLED BY: N.	Salerno, S. Talsma, L.	Goldstein
ADDRESS: 50 Front St	DDRESS: 50 Front Street, Suite 202		DATE SAMPLED:	12-Aug-21	
Newburgh,	NY 12550	s	TATE SAMPLED:	NY	
CONTACT: Lauren Tar	sio	ANA	PI	M/PLM-NOB/QTEM as	
PROJECT ID: Vall's Gate	Elementary School	TUR		HOURS	
Pre-Constr	ention Sampling	100	-ARODIND TIME.	5 DAYS	
PROJECT # : Q21-4189				OTHER	
For Samp	les Containing Vermic	ulite, Please Contac	t Igoldstein@qua	alityenv.com for Appro	oval
SAMPLE # LAB#	LOCA	TION	SAMPLI	E DESCRIPTION	COMMENTS
4189-61	MODS, Exterior, Behind	d Stone Panel	Cem	ent Board	
4189-62	MODS, Exterior, Behin	d Stone Panel	Cem	ent Board	
4189-63	1958 Wing, Exterior, W	/all		Brick	
4189-64	1958 Wing, Exterior, W	/all		Brick	
4189-65	1958 Wing, Exterlor, W	/all	Brid	ck Mortar	
4189-66	1958 Wing, Exterior, W	/all	Brid	ck Mortar	
4189-67	1987 Wing, Exterior, W	/all		Brick	
4189-68	1987 Wing, Exterior, W	Vall		Brick	
4189-69	1987 Wing, Exterior, V	Vall	Bri	ck Mortar	
4189-70	1987 Wing, Exterior, V	Vall	Bri	ck Mortar	
For Sam	ples Containing Vermi	culite, Please Conta	ct Igoldstein@qu	alityenv.com for Appr	oval
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		SAMPLED BY: N. Salerno, S. Taisma, L.Goldstein				
ADDRESS: 50 Front S	treet, Suite 202	DATE SAMPLED: 12-Aug-21				
Newburgh	, NY 12550	STATE SAMPLED: NY				
CONTACT: Lauren Ta	nsio AN	PLM/PLM-NOB/QTEM as ALYSIS METHOD: required				
PROJECT ID: Vail's Gat	e Elementary School TUR	N-AROUND TIME: HOURS				
Pre-Const	ruction Sampling	5 DAYS				
PROJECT #: Q21-4189		OTHER				
For Sam	I OCATION	ct Igoldstein@qualityenv.com for Appro	COMMENTS			
LAB#						
4189- <u>71</u>	MODS Roof, Top, First Layer	Modified Roof				
2780953						
4189-72	MODS Roof, Top, First Layer	Modified Roof				
2780954						
4169-73	MODS Roof, 2nd Layer, under Modified	Perlito				
	Layer, on isoroam					
4189-74	MODS Roof, 2nd Layer, under Modified	Perlite				
	Layer, on isoloam					
4189-75	MODS Roof, 3rd Layer, Under Perlite, on	Isofoam				
2780955	Tar/Shingle Layer					
4189-76	MODS Roof, 3rd Layer, Under Perlite, on	isofoam				
2780956	Tar/Shingle Layer					
4189-77	MODS, 4th Layer, Under Isofoam, on	Tar & Shingle Roof Layer				
2780957	Perlite, Tar on Shingle	(Please Separate)				
4189-78	MODS, 4th Layer, Under Isofoam, on	Tar & Shingle Roof Layer				
2780958	Perlite, Tar on Shingle	(Please Separate)				
4189-79	MODS, 5th Layer, Under Tar & Shingle, on Wood	Perlite				
4189-80	MODS, 5th Layer, Under Tar & Shingle, on Wood	Perlite				
For Sar	nples Containing Vermiculite, Please Conta	ct lgoldstein@qualityenv.com for Appr	oval			
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	DATE DATE	Stone AUG 14"	21 15:04			
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BULK SAMPLE FORM

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CLIENT: CPL		SAMPLED BY: N. Salerno, S. Talsma, L.	Goldstein
ADDRESS: 50 Front S	treet, Suite 202	DATE SAMPLED: 12-Aug-21	
Newburgh,	NY 12550 S	TATE SAMPLED: NY	
		PLM/PLM-NOB/QTEM as	
CONTACT: Lauren Tar	1510 ANA	ALYSIS METHOD: required	
PROJECT ID: Vail's Gate	Elementary School TURI	N-AROUND TIME: HOURS	
Pre-Constr	ruction Sampling	5DAYS	
PROJECT #: Q21-4189 For Sam	ples Containing Vermiculite, Please Contac	OTHER t Igoldstein@qualityenv.com for Appr	oval
SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
4189-81 2780959	MODS Roof, Above Hallway, Roof	Hot Mop Roof on Felt	
4189-82 2780960	MODS Roof, Above Hallway, Roof	Hot Mop Roof on Felt	
4189-83	MODS, Exterior, Behind Siding	Perlite	
4189-84	MODS, Exterior, Behind Siding	Perlite	
4189-85 2780961	MODS, Exterior, Behind Siding, Behind Perlite	Tar Paper Vapor Barrier	
4189-86 2780962	MODS, Exterior, Behind Siding, Behind Perlite	Tar Paper Vapor Barrier	
4189-87 2780963	Exterior, 1958 Wing, Window Wall, Pink	Caulk	
4189-88 2780964	Exterior, 1958 Wing, Window Wall, Pink	Caulk	
4189-892780965	Exterior, 1958 Wing, Stone Panel to Door, Gray	Caulk	
4189-90 2780966	Exterior, 1958 Wing, Stone Panel to Door, Gray	Caulk	
For San CHAIN OF CUSTODY (S	ples Containing Vermiculite, Please Contai EE LAST PAGE)	ct Igoldstein@qualityenv.com for App	roval
SUBMITTED BY:	Jalemo DATE:	8/13/2021	
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CLIENT: CPL			SAMPLED BY:	N. Salerno, S. Talsma, L.	Goldstein
ADDRESS: 50 Front St	reet, Suite 202		DATE SAMPLED:	12-Aug-21	
Newburgh,	NY 12550	s	TATE SAMPLED:	NY	_
CONTACT: Lauren Tarr	sio	ANA	ALYSIS METHOD:	PLM/PLM-NOB/QTEM as	-
PRO IECT ID: Vail's Gate	Elementary School	TUR		HOURS	
Pre-Constru	uction Sampling		TAROOND TIME.	5 DAVS	
PROJECT #: Q21-4189				OTHER	
For Samp	oles Containing Vermic	ulite, Please Contac	t lgoldstein@c	ualityenv.com for Appr	oval
SAMPLE # LAB#	LOCA	TION	SAM	PLE DESCRIPTION	COMMENTS
4189-91	MODS, Exterior, Buildir	ng to Sidewalk, Gray		Caulk	
2780967					
4189-92	MODS, Exterior, Buildir	ng to Sidewalk, Gray		Caulk	
2780968					
4189-93	Exterior Façade, 1987 V	Wing, Brick to		Caulk	
2780969	Louvre, White				
4189-94	Exterior Façade, 1987 V	Wing, Brick to		Caulk	
2780970	Louvre, White				
4189-95	Exterior, Window Wall	to AC Unit, Clear		Caulk	
2780971					
4189-96	Exterior, Window Wall	to AC Unit, Clear		Caulk	
2780972					
				······	
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	}				
For Sam	ples Containing Vermic	culite, Please Contac	t Igoldstein@	qualityenv.com for App	roval
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Non-Friable Organically Bound (NOB) Materials - This term refers to a wide variety of building materials, such as vinyl or asphalt floor tile, resilient floor covering, mastic, asphalt shingle, roofing material, caulk, putty, etc.. Polarized Light Microscopy (PLM) analysis has limitations when NOB materials are encountered. These limitations, such as the inability to detect thin or extremely short fibers (less than 1 micrometer in length) generated during the milling process and/or the difficulty of separating asbestos fibers and bundles from the resinous matrix, may lead to false negatives or underestimates of the amount of asbestos fibers present in the sample. Recently, NYS DOH added Ceiling Tiles with Cellulose to the list of materials to be analyzed via the NOB methods. For these reasons, when analysis by PLM yields negative results for the presence of asbestos in NOB materials, The State of New York Department of Health (DOH) has issued the following requirements as of April 8, 2011: NOBs and ceiling tiles with cellulose must be analyzed by both of the gravimetric matrix reduction methods (ELAP Item 198.6 and 198.4) to be deemed negative for asbestos.

EAS is approved by the NYS-DOH to perform analysis of NOB materials via Transmission Electron Microscopy (ELAP Item 198.4). The superior resolution of Transmission Electron Microscopy can detect the presence of asbestos fibers well beyond the range of PLM. In addition, the use of selected-area electron diffraction (SAED) and energy-dispersive spectroscopy (EDS) can positively identify asbestos fibers in the sample. NOB samples determined to contain less than 1% asbestos via the TEM method, must also be analyzed via PLM (198.6) to verify the absence of large amphibole fibers which may not have been successfully transferred to the EM Grids.

The State of New Jersey recently adopted amendments to their regulations requiring gravimetric reduction followed by PLM and TEM analysis for NOB building materials. The regulations can be found at http://wd.dol.state.ni.us/labor/lsse/laws/Asbestos law.html#5a39.

Recently (April 3, 2011), Maine DEP revised their regulations to require gravimetric reduction of NOBs https://www1.maine.gov/dep/waste/asbestos/documents/asbbulksampanalysisprotocolsformYenabled.pdf.

Vermiculite - As of July 9, 2013, NYS has issued new guidance on Vermiculite loose bulk materials and insulation materials which contain Vermiculite. The following quotes have been taken from their guidance letter: "If material is attic fill, block fill or other loose bulk vermiculite materials, it must be designated and treated as ACM. No approved analytical method currently exists to reliably confirm such vermiculite material as non-ACM." "Where thermal systems insulation (TSI), *, or other presumed ACM (PACM) or miscellaneous suspect ACM contain 10% vermiculite or less, certified laboratories may use ELAP Certification Manual Item 198.1 to determine the asbestos content of the material. Where TSI, *, or other PACM or miscellaneous suspect ACM contain greater than 10% vermiculite, Item 198.6 may be used to evaluate the asbestos content of the material; provided, however, that any test results using this method must be reported with the following conspicuous disclaimer:"

"This method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite." See the EPA website at https://www.epa.gov/asbestos/protect-your-family-asbestos-contaminated-vermiculite-insulation

* Surfacing Material Containing Vermiculite - As of May 6, 2016, NYS has issued new guidance regarding Surfacing Material containing vermiculite (essentially expanding the previous requirements for spray-on fireproofing to apply to all surfacing materials). If a surfacing material contains *any* vermiculite, it must be analyzed via NYS-DOH Method 198.8 (or RJ Lee Group Method 055) to be deemed negative for asbestos.

Surface Wipe Samples - Due to the fact that a large percentage of asbestos fibers released from deteriorating asbestos-containing materials or from improperly performed abatement activities are on the order of 5 micrometers or less and are near or below the resolution of a Polarized Light Microscope, Eastern Analytical Services, Inc. recommends that negative surface wipe samples be confirmed utilizing Transmission Electron Microscopy.

Point Counting - New York State Department of Health regulations require quantification of asbestos via the "Stratified Point Count" Method for all bulk samples originating from New York State. Please indicate the state of origin on the Chain of Custody form for all samples submitted to the laboratory. There is no additional charge for quantification using this method.

Layered Samples - NESHAP policy regarding layered bulk samples has changed. In the past, laboratories were required to analyze individual layers of multi-layered bulk samples separately, but report the results in terms of quantity of asbestos for the composite sample. This policy change requires that the layers be analyzed separately and reported as such. Additionally, materials are to be characterized as asbestos or non-asbestos based on the results of the individual layers.

As a result of this policy, EAS will be reporting the results of the individual layers of multi-layered bulk samples submitted for asbestos analysis UNLESS COMPOSITE RESULTS ARE SPECIFICALLY REQUESTED BY THE CLIENT. Additional layers for all bulk samples will be billed as separate samples.

If you have any questions concerning the above, please feel free to contact EAS.









	Date: 8/16/2021	Version #
95, 96 67, 68, 69, 70 82 83, 84, 85,	Issue Asbestos	d For: s Survey
93, 94	QuES&T I Q21-	Project # : 4189
77, 78, 79, 80	Project Manager: LG	Prepared By: NDS
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SAMPLE LOCATION KEY **Drawing Not to Scale** Sample Location (Non-ACM) This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.	SL	-05



Appendix C: LABORATORY, COMPANY & PERSONNEL LICENSES & CERTIFICATIONS

1376 Route 9, Wappingers Falls, NY 12590Phone (845) 298-6031Fax (845) 298-6251NYS MWBD MBE Cert # 49952-2006NYSUCP DBE CertifiedNJUCP DBE Certifiedwww.Qualityenv.com

B2Gnow





March 28, 2019

New York State Department of Economic Development 633 Third Avenue New York New York 10017 Tel 212 803 2414 Web Site: www.esd.ny.gov/MWBE/html

File ID: 49952

Quality Environmental Solutions & Technologies Inc. will be listed in New York State's Directory of Certified Businesses with the following list of codes for products and services:

NAICS 541620: ENVIRONMENTAL CONSULTING SERVICES NIGP 91843: ENVIRONMENTAL CONSULTING New York State – Department of Labor

Division of Safety and Health License and Certificate Unit State Campus, Building 12 Albany, NY 12240

ASBESTOS HANDLING LICENSE

Quality Environmental Solutions & Technologies, Inc.

1376 Route 9

Wappinger Falls, NY 12590

FILE NUMBER: 99-0018 LICENSE NUMBER: 29085 LICENSE CLASS: RESTRICTED DATE OF ISSUE: 01/26/2021 EXPIRATION DATE: 01/31/2022

Duly Authorized Representative - Lawrence J Holzapfel:

This license has been issued in accordance with a pplicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an a sbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving a sbestos or a sbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

SH 432 (8/12)

Eileen M. Franko, Director For the Commissioner of Labor



MUST BE CARRIED ON ASBESTOS PROJECTS

65 EYES BRO 95 HAIR BRO 96 HGT 5'08"

IF FOUND RETURN TO: NYSDOL - L&C UNIT ROOM 161A BUILDING 12 STATE OFFICE CAMPUS ALBANY NY 12240



11-602012362

This card acknowledges that the recipient has successfully completed:

30-hour Construction Safety and Health

This card issued to:

Laurence Goldstein

Paul Rodriguez Trainer Name

9/28/2018

Date of Issue



800-449-6742 outreach.keeneosha.com

OSHA recommends Outreach Training Courses as an orientation to occupational safety and health for workers. Participation is voluntary. Workers must receive additional training on specific hazards of their job. This course completion card does not expire.

Use or distribution of this card for fraudulent purposes, including false claims of having received training, may result in proscution under 18 U.S.C. 1001. Potential penalties include substantial criminal fines, imprisonment up to 5 years, or both.



To verify this training, scan the QR code with your mobile device.



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EYES BRO EAIR BRO EGT 6' 00"

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IF FOUND RETURN TO: NYSDOL - L&C UNIT ROOM 161A BUILDING 12 STATE OFFICE CAMPUS ALBANY NY 12240



OSHA recommends Outreach Training Courses as an orientation to occupational safety and health for workers. Participation is voluntary. Workers must receive additional training on specific hazards of their job. This course completion card does not expire.

-1 Use or distribution of this card for fraudulent purposes, including false claims of having received training, may result in prosecution under 18 U.S.C. 1001. Potential penalties include substantial criminal fines, imprisonment up to five years, or both.

For QSHA Outreach Training Program go to "Training" at www.osha.gov Rev. 9/2009 amit . .



EYES GRN HAIR BLN HGT 6'00" IF FOUND RETURN TO: NYSDOL - L&C UNIT ROOM 161A BUILDING 12 STATE OFFICE CAMPUS ALBANY NY 12240



12-006010504

This card acknowledges that the recipient has successfully completed

10-hour Construction Safety and Health

This card issued to:

Shannon D. Talsma

David Veit

Trainer Name

04/22/2016

Date of Issue



732.235.9450 aotc.sph.rutgers.edu

OSHA recommends Outreach Training Courses as an orientation to necupational safety and health for workers. Participation is voluntary, Workers must receive additional training in specific hazards of their job. This course completion card does not expire

Use or distribution of this card for fraudulent purposes, including false claims of having received training, may result in prosecution under $18/U\,S.C.(1001)$. Potential penalties include substantial criminal fines, imprisonment up to S years, or both.



Toverify this training scan the QIR code with your mobile device -

Rev 1/2016

NEW YORK STATE DEPARTMENT OF HEALTH WADSWORTH CENTER

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Expires 12:01 AM April 01, 2022 issued April 01, 2021

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

EAS INC - EASTERN ANALYTICAL SERVICES INC - 4 WESTCHESTER PLAZA	MR. PAUL STASCAVAGE 👗 🔤 👘 👘	물 특 분 -		NY	Lab i	ld No	o: 10851	2
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is hereby APPROVED as an Environmental Laboratory for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE All approved subcategories and/or analytes are listed below:

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Miscellaneous Asbestos in Friable Material Asbestos in Non-Friable Material-PLM Asbestos in Non-Friable Material-TEM Asbestos-Vermiculite-Containing Material Lead in Dust Wipes Lead in Paint	Item 198.1 of Manual EPA 600/M4/82/020 Item 198.6 of Manual (NOB by PLM) Item 198.4 of Manual Item 198.8 of Manual EPA 7000B EPA 7000B	الله الله الله الله الله الله الله الله	
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Serial No.: 62796 🚽

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.

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NEWBURGH ECSDPhase 5: 2019 Capital Improvement Project13940.20SECTION 00 3132 - GEOTECHNICAL DATA00 3132 - 1

SECTION 003132 GEOTECHNICAL DATA

1.1 GEOTECHNICAL DATA

- A. This Section with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.
- B. Because subsurface conditions indicated by the soil borings are a sampling in relation to the entire construction area, and for other reasons, the Owner, the Architect, the Architect's consultants, and the firm reporting the subsurface conditions do not warranty the conditions below the depths of the borings or that the strata logged from the borings are necessarily typical of the entire site. Any party using the information described in the soil borings and geotechnical report shall accept full responsibility for its use.
- C. A geotechnical investigation report for Project, prepared by Quality Geo Engineering. P.C., dated September 18, 2020 is available for viewing at the office of Construction Manager and is appended to this Document.
 - 1. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.
 - 2. Any party using information described in the geotechnical report shall make additional test borings and conduct other exploratory operations that may be required to determine the character of subsurface materials that may be encountered.
- D. Related Requirements:
 - 1. Section 002113 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.

END OF SECTION 003132

Quality Geo Engineering, P.C.

877 Route 4 S - Schuylerville, NY 12871 - Phone (518) 372-4067 - Fax (518) 507-6113

GEOTECHNICAL ENGINEERING REPORT PROPOSED BUILDING ADDITION VAILS GATE STEAM ACADEMY 400 OLD FORGE HILL ROAD NEW WINDSOR, NEW YORK

PREPARED FOR: CPL 50 Front Street, Suite 202 Newburgh, New York 12550

PREPARED BY:

Quality Geo Engineering, P.C. 877 Route 4S Schuylerville, New York 12871 on behalf of QC/QA Laboratories, Inc.



September 18, 2020 Project No. SE20-035

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FIGURES

FIGURE No. 1 – SITE LOCATION MAP FIGURE No. 2 – SUBSURFACE EXPLORATION LOCATION PLAN

APPENDICES

APPENDIX A – SUBSURFACE EXPLORATION LOGS APPENDIX B – FILL MATERIAL AND PLACEMENT RECOMMENDATIONS APPENDIX C – INFORMATION REGARDING THIS GEOTECHNICAL ENGINEERING REPORT

1.0 INTRODUCTION

This report presents the results of a subsurface exploration program and geotechnical engineering evaluation completed by Quality Geo Engineering, P.C. on behalf of QC/QA Laboratories, Inc., for the proposed building addition planned at Vails Gate STEAM Academy located at 400 Old Forge Hill Road in the Town of New Windsor, New York. The subsurface exploration was completed by QC/QA Laboratories, Inc. (QCQA Labs), and the geotechnical engineering evaluation was performed by Quality Geo Engineering, P.C., on behalf of QCQA Labs.

Based on the information provided by CPL, we understand the project will include constructing a new one-story building addition along with pavement reconstruction and new stormwater management systems. The building addition will be located on the east side of the existing building near the communications tower structure. The area within the proposed addition footprint consists of an existing grass area.

The site is located at 400 Old Forge Hill Road in the Town of New Windsor, New York. The approximate location of the project site is shown on the attached Figure No. 1. Existing site grades are relatively flat in the immediate vicinity of the proposed building addition with a slight downward gradient to the east.

2.0 SUBSURFACE EXPLORATION

The subsurface exploration program consisted of a total of nine (9) test borings drilled at the site by QCQA Labs on September 10 and 11, 2020. Four (4) test borings were located in the vicinity of the proposed building addition and were designed as B-1 through B-4. Three (3) test borings were located in pavement areas and were designated as P-1 through P-3. Two (2) test borings were located at stormwater infiltration test areas and were designated as IT-1 and IT-2. The approximate locations of the test borings are shown on the attached Figure No. 2.

Test borings B-1 through B-4 were advanced to auger refusal, which was encountered at depths ranging from 7.1 to 10.5 feet. Test borings P-1 through P-3 were terminated with sample spoon refusal at depths ranging from 3.1 to 5.8 feet. Test borings IT-1 and IT-2 were terminated with sample spoon refusal at depths of 3.1 and 4.8 feet, respectively. The test borings were made with a Central Mine Equipment (CME) model 550X all-terrain drill rig, using hollow stem auger drilling techniques. Split spoon samples and Standard Penetration Tests (SPTs) were taken in the test borings continuously to the boring termination depths. The split spoon sampling and SPTs were completed in general accordance with *ASTM D 1586 - "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils"*.

The test boring logs were prepared by a geotechnical engineer based on visual observation of the recovered soil samples and review of the driller's field notes. The soil samples were described based on a visual/manual estimation of the grain size

distribution, along with characteristics such as color, relative density, consistency, moisture, etc. The test boring logs are presented in Appendix A, along with general information and a key of terms and symbols used to prepare the logs.

3.0 SUBSURFACE CONDITIONS

3.1 Soil Profile

A surficial layer of topsoil, ranging from approximately 2 to 4 inches in thickness, was encountered in test borings B-1 through B-4, IT-1, and IT-2. The overburden soils encountered beneath the topsoil layer in test borings B-1 through B-4 generally consisted of sandy silt with trace amounts of intermixed gravel, and silty sand with varying amounts of intermixed gravel. Intermixed cobbles, boulders, and/or rock fragments were present within the overburden soils at various depths and locations. A layer consisting primarily of boulders and cobbles was encountered in test boring B-4 extending from a depth of approximately 2 feet to the boring termination depth of 10.5 feet.

Test borings P-1 through P-3 encountered a surficial layer of asphalt pavement, ranging from approximately 4 to 5 inches in thickness. The subbase materials beneath the asphalt pavement layer consisted of bank-run sand and gravel in test boring P-1 and consisted of a mixture of crushed stone and asphalt millings in P-2 and consisted of asphalt millings in P-3. The subgrade soils encountered beneath the subbase materials in test borings P-1 and P-3 consisted of silty sand with intermixed gravel or clay. Weathered rock fragments were encountered in test boring P-1 near the termination depth. The subgrade soils encountered in test boring P-2 consisted of existing fill type soils, which were described as gray sand and gravel with intermixed silt and brick fragments.

The soils encountered beneath the topsoil layer in test boring IT-1 consisted of brown silt with varying amounts of intermixed sand extending to the boring termination depth. The soils encountered beneath the topsoil layer in test boring IT-2 consisted of highly decomposed rock, which was sampled as brown-gray thin bedded silt.

Standard penetration test (SPT) "N" values obtained within the cohesionless soils encountered in test borings B-1 through B-4 ranged from 5 to greater than 50 indicating the relative density of these soils varied from "loose" to "very compact". SPT "N" values obtained in the cohesionless soils encountered in test borings P-1 through P-3 ranged from 8 to greater than 50 indicating the relative density of these soils varied from "loose" to "very compact". SPT "N" values obtained in the cohesionless soils encountered in test borings P-1 through P-3 ranged from 8 to greater than 50 indicating the relative density of these soils varied from "loose" to "very compact". SPT "N" values obtained in the cohesionless soils encountered in test borings IT-1 and IT-2 ranged from 11 to greater than 50 indicating the relative density of these soils varied from "firm" to "very compact".

3.2 Auger Refusal

Auger refusal was encountered in test borings B-1 through B-4 at depths ranging from 7.1 to 10.5 feet. Weathered rock fragments were recovered from test borings B-1 and B-2

near the auger refusal depths indicating the top of bedrock was likely encountered. Additional probe borings were drilled approximately 5 feet away from test borings B-2, B-3, and B-4 to verify the auger refusal depths. Auger refusal was encountered in the probe borings at depths ranging from 8.5 to 10.5 feet. Rock coring was not performed to confirm the nature and consistency of the refusal material encountered in the test borings. The auger refusal (apparent top of bedrock) depths encountered in the test borings and probe borings are presented in the table below.

Test Boring No.	Auger Refusal Depth (Apparent top of Bedrock) (feet)	Probe Boring Auger Refusal Depth (Apparent top of Bedrock)
		(feet)
B-1	9.1	NA
B-2	10.3	10.5
B-3	7.1	8.5
B-4	10.5	10.0

3.3 Groundwater Conditions

Free standing water was not encountered in the test borings at the time of drilling, however, we point out that the soil samples recovered from test borings B-3 and P-1 between depths of 2 to 4 feet were described as "wet" indicating that perched or trapped groundwater conditions were likely present. It should be expected that some isolated areas of perched or trapped groundwater conditions could be encountered in the near surface soils in some areas following periods of wet weather. It should be expected that groundwater conditions, precipitation, and seasonal conditions.

4.0 INFILTRATION TESTING

A total of two (2) infiltration tests were performed at the site. The infiltration tests were designated as IT-1 and IT-2 and were conducted at a depth of 4.0 feet. The holes were pre-soaked in advance of testing. Infiltration testing was performed in general accordance with the New York State Department of Environmental Conservation "*Stormwater Management Design Manual*", Appendix D criteria. The infiltration test results are presented in the following table.

Infiltration Test Results									
Infiltration	Test Depth	Trial No.	Water Drop	Elapsed	Infiltration				
Test No.	(feet)		(inches)	Time	Rate				
				(hours)	(inches/hour)				
		1	0.25	1	0.25				
IT-1	4	2	0	1	0				
		3	0	1	0				
		4	0	1	0				
		1	0.5	1	0.5				
IT-2	4	2	0	1	0				
		3	0	1	0				
		4	0	1	0				

5.0 GEOTECHNICAL RECOMMENDATIONS

5.1 General

In our opinion, the proposed building addition can be supported using conventional spread foundations with slab-on-grade construction, provided our recommendations are implemented.

The on-site soils generally contained an appreciable fraction of intermixed silt. Although these soils are not necessarily unsuitable for re-use as backfill against foundations, they will likely be relatively difficult to work with and may require extended periods of drying if wet weather conditions are encountered during construction. We recommend that all fill and/or backfill placed beneath slab-on-grade areas consist of an imported Structural Fill or Subbase Stone. Recommendations for Structural Fill and Subbase Stone are presented in Appendix B.

5.2 Site Preparation

Existing vegetation and topsoil should be removed from within the proposed building footprint and proposed new pavement areas. Following the removal of surface materials and excavation to the design subgrade elevation, the exposed subgrade should be proofrolled and evaluated by a geotechnical engineer during construction.

Any areas which appear wet, loose, soft, unstable, or otherwise unsuitable, should be undercut as directed by the geotechnical engineer. Undercut excavations beneath slab-ongrade and pavement areas should be backfilled with compacted Structural Fill or Subbase Stone. Recommendations for Structural Fill and Subbase Stone, along with placement and compaction requirements, are presented in Appendix B. In our opinion, the existing on-site soils are not well suited for re-use as structural fill beneath building foundations and slab areas. The on-site soils generally contained a significant fraction of silt soils and will be sensitive to changes in moisture. We recommend that imported Structural Fill be used to raise existing grades within the building and/or pavement areas. Placement of all fill and/or backfill within the building and pavement areas should be observed and tested by qualified geotechnical personnel. Recommendations for fill material, placement, and compaction requirements are presented in Appendix B.

Finished grades surrounding the classroom addition should be sloped to direct surface water away from the building.

5.3 Spread Foundations

It is our opinion the building can be supported using spread foundations. We recommend spread foundations bear on a nominal 6-inch thick layer of Subbase Stone, which is placed over undisturbed native soils. The Subbase Stone should be compacted with several passes of a vibratory compactor. The Subbase Stone layer will protect the native bearing grade from softening and degrading if wet weather conditions are encountered during construction. The exposed native soil bearing grades should be observed and evaluated by a geotechnical engineer, prior to placement of the Subbase Stone layer.

It should be expected that cobbles and/or boulders will be encountered in the foundation excavation, particularly in the vicinity of test boring B-4. Cobbles and/or boulders should be removed where they protrude above the design bearing grade. The resulting void should be backfilled with compacted Subbase Stone.

All final bearing grades should be firm, stable, and free of loose soil, mud, water, frost, or other deleterious materials. Any soft or otherwise unsuitable soils identified by the geotechnical engineer should be undercut and replaced with compacted Subbase Stone as directed by the geotechnical engineer. Undercut excavations should extend out horizontally beyond the edge of the foundation a distance equal to the one-half of the depth of the undercut below the foundation.

We recommend continuous wall foundations be at least 1.5 feet in width and isolated column foundations be at least 2.5 feet square. Interior foundations should be embedded at least 1.5 feet below the top of the interior floor slab in order to develop adequate bearing capacity. Exterior foundations must be embedded a minimum of 4.0 feet below finished exterior grades for frost protection.

Spread foundations, which are designed and constructed in accordance with our recommendations, can be sized using a maximum allowable soil bearing pressure of 3,000 pounds per square foot (psf). The allowable soil bearing pressure is based on a factor of safety of at least 3.0.

It is estimated that spread foundations, sized and properly constructed in accordance with our recommendations, will undergo total settlement of less than 3/4 inch, and differential settlements should be less than 1/2 inch.

5.4 Slab-on-Grade

The building at-grade floor slab can be constructed as slab-on-grade following proper site preparation as discussed in Section 5.2 above. A minimum of 6 inches of Subbase Stone, as described in Appendix B, is recommended directly beneath the floor slab. The floor slab can be designed in accordance with procedures recommended by the Portland Cement Association or the American Concrete Institute, using a modulus of subgrade reaction of 200 pounds per cubic inch at the top of the Subbase Stone layer.

We recommend a vapor barrier be provided beneath interior floor slabs in areas receiving moisture-sensitive flooring in accordance with the American Concrete Institute (ACI) Guide for Concrete Floor and Slab Construction.

It should be understood that exterior slabs and sidewalks constructed upon the site's soils will heave as frost seasonally penetrates the subgrades. The magnitude of frost heave will vary with many factors resulting in differential movements that could result in tripping hazards. As the ground thaws, the heaved areas may settle back down unevenly, again creating potential tripping hazards. The magnitude of frost heave in sensitive areas, such as near doors and at sidewalk/pavement transitions, can be reduced by constructing the slabs over at least 18 inches of Drainage Stone. The Drainage Stone layer must have an underdrain within it to provide positive drainage to a suitable outlet. Although this may not eliminate all movement associated with frost heave, it should provide adequate protection against excessive differential frost heave during most winters. Recommendations for Drainage Stone material are presented in Appendix B.

5.5 Seismic Design Parameters

Based on the soil conditions encountered in the test borings, it is our opinion the site can be classified as **Seismic Site Class "C"** according to the 2020 Building Code of New York State criteria.

The mapped spectral accelerations in the project areas for Site Class "B" were based data obtained from the Applied Technology Council (ATC) web site (<u>www.hazards.atcouncil.org</u>) using latitude 41.4616 and longitude -74.0537 for the project site and ASCE7-16 data. The spectral response accelerations for Site Class "B" are as follows:

- Short Period Response (S_S) 0.240g
- 1 Second Period Response (S₁) 0.057g

For design purposes, the spectral response accelerations must be adjusted for site class "C" as follows:

- Short Period Response (S_{MS}) 0.312g
- 1 Second Period Response (S_{M1}) 0.086g

The corresponding five percent damped design spectral response accelerations (S_{DS} and S_{D1}) are as follows:

- S_{DS} 0.208g
- S_{D1} 0.057g

Based on the soil conditions encountered in the test borings, it is our opinion the soils underlying the site are not considered susceptible to soil liquefaction as a result of the design seismic event.

5.6 Pavement Section

Existing grass and topsoil should be removed from within the proposed new pavement areas. The exposed soil subgrade should be proofrolled and evaluated by a geotechnical engineer during construction. The proofrolling should be performed using a minimum 7-ton vibratory roller, or a loaded dump truck.

Any areas which appear wet, loose, soft, unstable, or otherwise unsuitable, should be undercut as directed by the geotechnical engineer. Undercut excavations should be backfilled with compacted Subbase Stone. Recommendations for Subbase Stone material, along with placement and compaction requirements, are presented in Appendix B.

Proper drainage of the pavement section is required to maximize the pavement longevity. The soil subgrade materials encountered int the test borings consisted of relatively low permeability soils, which will tend to trap and hold surface water as it infiltrates into the ground. We recommend underdrains be incorporated into the pavement section to prevent groundwater from infiltrating into the pavement section Subbase Stone layer. The underdrains should consist of 4-inch diameter perforated plastic pipe surrounded by Drainage Stone, which is wrapped in non-woven geotextile separation fabric. The underdrains should be established approximately 12 inches below the bottom of the Subbase Stone layer and should discharge to a suitable outlet. We recommend underdrains be installed along pavement edges and at intervals of approximately 50 feet within parking lot areas. The soil subgrades should be sloped to direct groundwater to the underdrains.

We recommend materials for the above pavement structure components consist of the following:
- A. Asphalt Concrete Top Course NYSDOT Standard Specifications, 9.5 F3 Top Course (or Type 6 or Type 7 Top Course).
- B. Asphalt Concrete Binder Course NYSDOT Standard Specifications, 25 F9 Binder Course (or Type 3 Binder Course).
- C. Asphalt Concrete Base Course NYSDOT Standard Specifications, 37.5 F9 Base Course (or Type 1 Base Course).
- D. Subbase Stone Should comply with NYSDOT Standard Specifications, 304.12 Type 2 or 304.14 Type 4 Subbase.
- E. Drainage Stone Should comply with NYSDOT Standard Specifications, Section 703-02 Material Designation 703-0201 or 703-0202, Size Designation No. 1 washed gravel or stone.
- F. Non-Woven Geotextile Separation Fabric Non-Woven polypropylene separation geotextile (i.e. Mirafi 140N or approved equivalent).
- G. Woven Geotextile Stabilization Fabric Woven polypropylene stabilization geotextile (i.e., Mirafi 500X or approved equivalent).

Adjacent geotextile panels should have an overlap of at least 18 inches. Construction of the asphaltic concrete courses (i.e., base, binder and top) should be performed in accordance with NYSDOT Standard Specifications Section 400. The base, binder and top courses should be compacted to at least 92 percent of the maximum theoretical density.

The pavement sections recommended below are based on the assumption that the subgrades and pavement sections will be prepared and constructed in accordance with our recommendations.

Parking Areas

- 1.5 inches Top Course
- 2.5 inches Binder Course
- 12.0 inches Subbase Course
- Woven geotextile stabilization fabric

Main Drive/Bus Loop

- 1.5 inches Top Course
- 2.5 inches Binder Course
- 3.0 inches Base Course
- 16.0 inches Subbase Course

• Woven geotextile stabilization fabric

6.0 CONCLUDING REMARKS

This report was prepared to assist in planning the design and construction of the proposed building addition planned at Vails Gate STEAM Academy located at 400 Old Forge Hill Road in the Town of New Windsor, New York. This report has been prepared for specific application to this site and this project only.

The recommendations were prepared based on our understanding of the proposed project, as described herein, and through the application of generally accepted soils and foundation engineering practices. No warranties, expressed or implied, are made by the conclusions, opinions, recommendations, or services provided.

Important information regarding the use and interpretation of this report is presented in Appendix C.

Respectfully Submitted: Quality Geo Engineering, P.C.

Too Koonk

Tod M. Kobik, P.E. President

FIGURES



	SCALE: N.T.S.	
	DRAWN BY: TMK	SITE LOCATION MAP
QUALITY GEO ENGINEERING, P.C.	DATE: 9/18/20	BUILDING ADDITION
877 ROUTE 4 S SCHUYLERVILLE, NEW YORK 12871	PROJECT No.: SE20-035	VAILS GATE STEAM ACADEMY
PHONE (518) $3/2-4067$	FIGURE No.:	400 OLD FORGE HILL ROAD
	1	NEW WINDSOR, NEW YORK



NOTE: TEST BORING, PAVEMENT CORE, AND INFILTRATION TEST LOCATIONS ARE APPROXIMATE.

	SCALE: NTS	
QUALITY GEO ENGINEERING, P.C.	DRAWN BY: <i>TMK</i>	TEST BORING LOCATION PLAN
877 ROUTE 4 S	DATE: 9/18/20	
SCHUYLERVILLE, NEW YORK 12871	PROJECT No.:	VALLS GATE STEAM ACADEMY
PHONE (518) 372-4067	SE20-035	
EAX (518) 507-6113	FIGURE No.:	400 OLD FORGE HILL ROAD
TAX (318) 307-0113	2	NEW WINDSOR, NEW YORK

APPENDIX A

SUBSURFACE EXPLORATION LOGS

DA1 STA	ΓE \RT	2		9/10/	/2020				QCQALabs	BORING NO PROJ. NO	B-1 SE20-035
FIN SHE	ISH ET	: 1	OF	9/10/ 1	/2020				DRILLING & TESTING SERVICES	SURF. ELEV G.W. DEPTH	G.S. See Notes
		СТ	Vails (Sato ST		cadem	,				
		01.	Valio C			oddeniy			New Windsor, New York		
РТН	LES	Ъ.		BLOW	S ON SA	MPLER		REC.	SOIL OR ROCK	NC	
(ft.)				N	(ft.)	CLASSIFICATION					
		1	5	5	5	5	10	1.7	Brown Firm SILT AND Fine-Medium SAND, Trace Gravel, Dry	4" Topsoil at grour	nd surface.
	/	2	11	13	13	15	26	1.8	Brown Firm Fine-Coarse SAND, Some Silt, Trace Gravel, Dry		
5	/	3	12	12	13	15	25	1.8	Contains Cobbles		
		1	10	15	21	28	36	17	Compact Contains Weathered Rock Fragments		
_	/	4	10	10	21	20	30	1.7		REF = Sample sp	oon refusal.
		5	50/0.3				REF	0.2	Gray Very Compact Weathered Rock Fragments, Dry		
10-									Boring terminated with auger refusal at a depth of 9.1 feet.	Free standing wate encountered in bo completion of drilli	er was not re hole upon ng.
_											
15											
_											
_											
20											
_											
25											
_											
_											
30											
_											
								$\left - \right $			
35											
_											
40											
40	NO. 1	BLOW	S TO DR	IVE 2-IN	ICH SPL	IT SPOC) N 12-IN	CHES	WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW	CLASSIFICATION: VI	sual by
MET					ACTM	D1506	uning	2 25" 1		I. N	

DA ⁻ STA FIN	TE \RT	DATE START: 9/11/2020 FINISH: 9/11/2020							QCQALabs	BORING NO PROJ. NO SURF_FI_FV	B-2 SE20-035 G S		
SHE	ET	1	OF	1			•		DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	G.W. DEPTH	See Notes		
PRO	JE	CT:	Vails C	Gate ST	EAM A	cademy	/	1	LOCATION: 400 Old Forge Hill Road				
	s	ш											
PTH ft.)	H H H H H H H H H H H H H H H H H H H						N	REC. (ft.)	SOIL OR ROCK CLASSIFICATION	NOTES			
	° /	1	4	5	9	16	14	1.9	Brown Firm Fine-Medium SAND, Some Silt, Some Weathered	4" Topsoil at ground surface.			
_	/	2	13	18	21	20	39	1.5	Rock fragments, Dry Compact, Grades to "AND" Weathered Rock Fragments				
5 —	/	3	12	9	6	6	14	0.5	Firm, Contains Cobbles				
	/	4	9	8	9	15	17	2.0	Moist				
10	/	5	26	40	50/0.3		REF	1.2	Gray Very Compact Weathered Rock Fragments, Dry	REF = Sample sp	oon refusal.		
									Boring terminated with auger refusal at a depth of 10.3 feet.	Free standing wat encountered in bo completion of drilli The driller advanc boring approximat	er was not re hole upon ng. ed a probe ely 5 feet frorr		
20										B-2 and encounter refusal at a depth	red auger of 10.5 feet.		
30-													
40 N = I DRIL	NO.	BLOW	S TO DR	I RIVE 2-IN	I ICH SPL T. Farre	I IT SPOC ell) 12-IN	CHES V	WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW DRILL RIG TYPE : <u>CME 550X</u>	CLASSIFICATION: <u>Vi</u>	sual by		

DA1 STA	E	:		9/10/	/2020					BORING NO. B-3 PROJ. NO. <u>SE20-03</u>		
SHE	ET	: 1	OF	9/10/					DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	G.W. DEPTH See Notes		
PRC	JE	CT:	Vails G	ate ST	EAM A	cademy	/	I	LOCATION: 400 Old Forge Hill Road			
	ES	Щ		BLOWS	S ON SA	MPLER		DEC				
РГН it.)	SAMPL	SAMP NO.	0/6	6/12	12/18	18/24	N	(ft.)	CLASSIFICATION	NOTES		
	/	1	4	6	9	13	15	1.3	Brown Firm Fine-Medium SAND AND SILT, Little Gravel, Dry	4" Topsoil at ground surface.		
	/	2	4	3	2	5	5	1.0	Loose, Wet			
_	7	3	5	4	8	50/0.3	12	1.2	Firm, Moist			
	\square	4	50/0.2				REF	NR	Very Compact	REF = Sample spoon refusal. NR = No recovery.		
0 									Boring terminated with auger refusal at a depth of 7.1 feet.	Free standing water was not encountered in bore hole upo completion of drilling.		
										The driller advanced a probe boring approximately 5 feet fr B-3 and encountered auger refusal at a depth of 8.5 feet.		
0	10.1	BLOW	S TO DR	IVE 2-IN	CH SPL		DN 12-IN	CHESV	NITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW	CLASSIFICATION: Visual by		
RIL	LER	R:			T. Farr	ell			DRILL RIG TYPE : CME 550X	T. Kobik		

DAT STA	E RT			9/10/	(2020					BORING NO. B-4 PROJ. NO. <u>SE20-035</u>		
SHE	ET	1	OF	1	2020				DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	G.W. DEPTH See Notes		
PRC	JE	CT:	Vails G	iate ST	EAM A	cademy	/		LOCATION: 400 Old Forge Hill Road	ll Road		
									New Windsor, New York			
тн	LES	PLE O.		BLOWS	S ON SA	MPLER		REC.	SOIL OR ROCK	NOTES		
t.)	SAMF	SAN	0/6	6/12	12/18	18/24	N	(ft.)	CLASSIFICATION	NOTES		
_		1	4	6	10	11	16	1.7	Brown Firm Fine-Medium SAND AND SILT, Little Gravel, Dry	2" Topsoil at ground surface.		
	/	2	17	28	50/0.3		REF	0.6	BOULDERS AND COBBLES, sampled as Gray Very Compact Rock Fragments, Little Fine-Coarse Sand, Trace Silt, Dry			
	\angle	3	50/0.1				REF	NR				
							D	0.0	Circillar	REF = Sample spoon refusal.		
_		4	ວປ/ປ.4				KEF	0.3	Similar	INK = NO recovery.		
	Ζ	5	50/0.3				REF	0.2	Similar			
0-												
									Boring terminated with auger refusal at a depth of 10.5 feet.	Free standing water was not		
										encountered in bore hole upon		
_										completion of drilling.		
_										The driller educated a probe		
_										boring approximately 5 feet from		
)										B-4 and encountered auger		
										refusal at a depth of 10.0 feet.		
_												
5—												
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_												
			0 = 0 =									
= N RII	NO. I	BLOW R:	S TO DR	IVE 2-IN	CH SPLI T. Farre	ir SPOC ell	N 12-IN	CHES	VITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW DRILL RIG TYPE : CME 550X	CLASSIFICATION: VISUAL by T. Kobik		
FT					ASTM	D1506	ucina	0.05"				

DA1 STA	E RT:	:		9/11/	/2020				QCQA Labs	BORING NO PROJ. NO	P-1 SE20-035	
FIN	SH:	:		9/11/	2020				QC/QA LABORATORIES,INC.	SURF. ELEV.	G.S.	
SHE	ET_	T_1_OF_1							DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	G.W. DEPTH See Notes		
PRC	ROJECT: Vails Gate STEAM Academy					cademy	/	•	LOCATION: 400 Old Forge Hill Road			
									New Windsor, New York			
ЕРТН	PLES	APLE 10.		BLOWS	S ON SA	MPLER	-	REC.	SOIL OR ROCK	NOTES		
(ft.)					18/24	Ν	(ft.)	CLASSIFICATION				
	/	1		7	6	6	13	1.0	FILL: Brown-Gray Fine-Coarse SAND AND GRAVEL, Trace	4" Asphalt paveme	ent at ground	
	/	2	5	4	4	5	8	1.8	Brown-Gray Loose Fine-Medium SAND, Some Silt, Trace Clay, Wet	sunace.		
5	/	3	8	15	26	50/0.3	41	1.6	Brown-Gray Compact Weathered Rock Fragments, Moist			
	- - - - - - - - - - - - - - - - - - -								Boring terminated with sample spoon refusal at a depth of 5.8 feet.	Free standing wat encountered in bo completion of drilli	er was not re hole upon ing.	
·25												
35	-											
40	-											
N = N DRIL	IO. E LER	BLOW	S TO DF	RIVE 2-IN	CH SPL T. Farr	IT SPOO	N 12-IN	CHES \	NITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW DRILL RIG TYPE : CME 550X	CLASSIFICATION: V	isual by obik	

DA1 STA	E RT:	:		9/11/	2020		-		QCQALabs	BORING NO. PROJ. NO. S	P-2 E20-035					
SHE	ET_	1	OF	1			-		DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	G.W. DEPTH S	ee Notes					
PRC	JE	CT:	Vails G	ate ST	EAM A	cademy	/		LOCATION: 400 Old Forge Hill Road							
									New Windsor, New York							
PTH	oLES	IPLE 0.		BLOWS	ON SA	MPLER		REC.	SOIL OR ROCK	NOTES						
ft.)			12/18 18/24	N	(ft.)	CLASSIFICATION										
	Λ	1		9	15	25	40	0.3	Gray Compact CRUSHED STONE AND ASPHALT MILLINGS, Dry	4" Asphalt pavement a	at ground					
		2	17	8	21	22	29	1.0	FILL: Grav Firm Fine-Medium SAND AND GRAVEL Little Silt	Surface. RFF = Sample spoon	refusal					
		-							Trace Bricks, Dry	NR = No recovery.	Toracan					
5 —	4	3	50/0.1				REF	NR	Boring terminated with sample spoon refusal at a depth of 4.0 feet.							
	ŀ									Free standing water w	as not					
_										encountered in bore h	ole upon					
	-									completion of drilling.						
10-	+															
	-															
_																
	-															
15-																
	-															
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	-															
20	ł															
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	ŀ															
10	10. E	BLOW	S TO DR	IVE 2-IN	CH SPL	IT SPOC) N 12-IN	CHES V	VITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW	CLASSIFICATION: Visua	l by					
DRIL	LER	:		-	T. Farre	ell			DRILL RIG TYPE : CME 550X	T. Kobik	_					

DA1 STA	TE ART:	:		9/11/	/2020				QCQALabs	BORING NO PROJ. NO	P-3 SE20-035		
FIN SHE	ISH: ET	: 1	OF	9/11/	2020		-		DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	SURF. ELEV G.W. DEPTH	G.S. See Notes		
).IE(ст∙	Vails (Sate ST	FAM A	cadem	/		I OCATION: 400 Old Force Hill Road	Road			
		01.	Valio C		E / (101 / 0	caucing	y		New Windsor, New York				
РТН	LES	PLE O.		BLOWS	S ON SA	MPLER		REC.	SOIL OR ROCK				
ít.)	SAMP	SAM NG	0/6	6/12	12/18	18/24	N	(ft.)	CLASSIFICATION	NOTES			
		1		7	5	8	13	1.1	Black Firm ASPHALT MILLINGS, Dry	5" Asphalt paveme	ent at ground		
	/	2	10	25	50/0.1		REF	1.0	Brown Very Compact F-M SAND AND SILT, Little Gravel, Dry	REF = Sample spo	oon refusal.		
	\langle												
5 —									Boring terminated with sample spoon refusal at a depth of 3.1 feet.				
_										Free standing wate	er was not		
_										encountered in bo	re hole upon		
	-									completion of drilli	ng.		
0													
	-												
5													
_													
_	-												
20-													
_													
5													
30-													
_													
35—													
_													
0-	L		I	1	1	1	I			1			
N = M	10. E	BLOW	S TO DF	RIVE 2-IN	CH SPL	IT SPOC)N 12-IN	CHES V	WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW	CLASSIFICATION: VI	sual by		
DRIL	LER	R:			T. Farre	ell			DRILL RIG TYPE : CME 550X	Т. Ко	bik		

DAT STA FIN	TE \RT	-: 1:		9/10/ 9/10/	/ <u>2020</u> /2020				QCQALabs	BORING NO. IT-1 PROJ. NO. <u>SE20-035</u> SURF. ELEV. G.S.			
SHE	ΕT	1	OF	1			-		DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	G.W. DEPTH See Note:			
PRC	JE	CT:	Vails G	ate ST	EAM A	cademy	/	ļ	LOCATION: 400 Old Forge Hill Road				
	s	ш											
PTH ft.)							N	REC. (ft.)	SOIL OR ROCK CLASSIFICATION	NOTES			
	\$	1	3	5	6	8	11	1.5	Brown Firm SILT, Trace-Little Fine-Medium Sand, Dry	3" Topsoil at ground surface.			
	7	2	10	11	20	23	31	1.8	Compact, Grades to "Some" Fine-Coarse Sand	REF = Sample spoon refusal.			
5	\mathbb{Z}	3	50/0.1				REF	NR		INR = NO recovery.			
										Free standing water was not encountered in bore hole upon completion of drilling.			
35 —													
40													
N = N DRIL MET	NO. Lef Hoe	BLOW R: D OF II	S TO DR	IVE 2-IN	CH SPL T. Farre ASTM	IT SPOC ell D1586	N 12-IN	CHES V 2.25" I.	VITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW DRILL RIG TYPE : CME 550X D. Hollow Stem Augers	CLASSIFICATION: Visual by T. Kobik			

DAT STA	E RT:	:		9/10/	2020					BORING NO PROJ. NO	IT-2 SE20-035	
SHE	ET	1	OF	1	2020				DRILLING & TESTING SERVICES SUBSURFACE EXPLORATION LOG	G.W. DEPTH See Notes		
PRC	OJECT: Vails Gate STEAM Academy						/		LOCATION: 400 Old Forge Hill Road	I		
									New Windsor, New York			
ртн	PLES	APLE IO.		BLOWS	ON SA	MPLER		REC.	SOIL OR ROCK	NOTES		
t.)	SAM	M 10/6 6/12 12/18 18/24 N				18/24	N	(ft.)	CLASSIFICATION			
_		1	6	8	11	16	19	1.6	Brown-Gray Highly Decomposed Rock, sampled as Firm Thin	4" Topsoil at grou	ind surface.	
	/	2	20	25	30	40	55	1.6	Very Compact	REF = Sample sp	ooon refusal.	
_	4	2	20	50/0.0			DEE	0.5				
									bonng terminated with sample spoon rerusal at a deput of 4.6 reet.	Free standing wa encountered in bo completion of drill	ter was not ore hole upon ling.	
_												
-												
0												
= N RIL	IO. E	BLOW:	S TO DF	RIVE 2-IN	CH SPLI T. Farre	IT SPOC)n 12-in	CHES V	WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW DRILL RIG TYPE : CME 550X	CLASSIFICATION: <u>V</u>	/isual by	

EXAMPLE KEY TO SUBSURFACE EXPLORATION LOGS

DATE					PROJ. NO. <u>XX-XXXX</u>
START: XX/XX/XX	_	ULU	ALab	S	HOLE NOX-X
	-	QC/QA LABORATOR	RIES, INC.		30KF. LEEV
SHEET X OF X		GEOTECHNICAL E	NGINEERING SERVI	CES	G.W. DEPTH <u>X.X'</u>
	-				
PROJECT: PROJECT	NAME		LOCATION:	PROJECT LOCATIO	N
PROJECT	NAME			PROJECT LOCATIO	N
	ERY	2011			
		CLAS	SIFICATION		NOTES
	,4 N ₩				
	7 1.0 3"	TOPSOIL			Groundwater at 10'
	Bro	wn Loose SILT,	some Sand, t	race clay,	upon completion, and
	MO	lst		•	5' 24 hrs. after
	Gra	av SHALE, mediu	m hard, weath	ered.	
	thi	in bedded, some	fractures	,	Run#1, 3.5'-6.0'
		Ţ			95% Recovery 🔨 🗍
		(7) (numb explai	ered features ned on reverse)	U	50% RQD (10)
		exp: en			
IABLE I	TABLE II]	TABLE III	
Split Spoon	Identification of s	soil type is made on basi	is of an estimate	The following ter	ms are used in classifying soils
Sample	on basis of plast	icity.	grained soils also	consisting of mix	tures of two or more soil types.
	Soil Type	Soil Particle Size			based on weight of total sample.
Sample	Boulder	>12"		Term	Percent of Total Sample
	Cobble	3" - 12"		"and"	35 - 50
Geoprobe	Gravel - Coarse	3" - 3/4"	Coarse Grained	"some"	20 - 35
	- Fine	3/4" - #4	(Granular)	"little"	10 - 20
Auger or Test	- Medium	#10 - #40		liace	less than To
	- Fine	#40 - #200		(When sampling	gravelly soils with a standard split
Rock Core	Silt - Non Plastic	(Granular)		spoon, the true precovered due to	bercentage of gravel is often not
	Clay - Plastic (C	ohesive) <#200	Fine Grained	diameter.)	
TARIE IV	L		ļ]	TARIE V	
]		
The relative compactness	or consistency is c	lescribed in accordance	with the	Varved Ho	rizontal uniform layers or seams of
Granular Soils		Cohesive Soils		soi	(s).
Term Blows	per Foot, N	Term Blow	s per Foot, N	Layer So	I deposit more than 6" thick.
Very Loose 0	- 4	Very Soft	0 - 2		
Loose 4	- 10	Soft Medium	2 - 4	Seam So	l deposit less than 6" thick.
Firm 10	- 30	Stiff	8 - 15		
Compact 30	- 50	Very Stiff 1	5 - 30	Parting So	l deposit less than 1/8" thick.
	>50	Hard	>30		
(Large particles in the soil recorded during the pener	s will often significa tration test)	Intly influence the blows	per foot	Laminated Irre	guiar, horizontal and angled seams dipartings of soil(s).
TABLE VI				L	
Rock Classification T	erm Meanin	g	Rock C	lassification Term	Meaning
Hardness - Soft	Scratche	ed by fingernail	Bedding	- Laminated	(<1")
- Medium H	lard Scratche	ed easily by penknife		- Thin Bedded	(1" - 4")
- Hard	Scratche	ed with difficulty by penk	nife	- Bedded	(4" - 12") Natural breaks

Hard - Very Hard Weathering - Very Weathered - Weathered - Sound

Scratched with difficulty by penknite Cannot be scratched by penknife Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.

- Massive (>36") (Fracturing refers to natural breaks in the rock oriented at some angle to the rock layers)

- Thick Bedded

(12" - 36")

GENERAL INFORMATION & KEY TO SUBSURFACE LOGS

The Subsurface Logs attached to this report present the general observations and mechanical data collected by the driller at the site, supplemented by classificiation of the material removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a small fraction of the soils at the site and may not be representative of subusurface conditions between and/or away from the boring locations or betweeen the sampled intervals. The data presented on the Subsurface Logs along with the recovered samples provide a basis for estimating the engineering characteristics of the soils at the site. The evaluation must consider all the recorded details and their relative significance to the project. It is common that evaluation of standard subsurface data indicates the need for additional testing and/or sampling to more accurately evaluate the subsurface conditions. Any evaluation of the data presented on the Subsurface Logs to describe the conditions encountered. The paragraph numbers below correspond to the numbered features identified on the opposite page.

- 1. The figures in the Depth column define the scale of the Subsurface Log.
- 2. The Samples column shows a graphical representation of the depth and type of sampling performed. See Table I for descriptions of the symbols used to represent the various types of samples.
- 3. The Sample No. is used for identification on sample containers and laboratory test reports.
- 4. Blows on Sampler shows the results of the "Standard Penetration Test" (SPT), recording the number of blows required to drive a split spoon sampler into the soil. The number of blows required to drive the sampler for each six inch increment is recorded. The first six inches of penetration is considered a seating drive. The sum of the number of blows required for the second and third six inch increments is termed the penetration resistance, N. The outside diameter of the sampler, hammer weight and length of drop are noted at the bottom of the Subsurface Log.
- 5. Recovery Shows the length of the recovered sample.
- 6. All recovered soil samples are reviewed in the laboratory by an engineering technician or geotechnical engineer, unless noted otherwise. Visual descriptions are made on the basis of a combination of the driller's field descriptions and noted observations together with the sample as received in the laboratory. The method of visual classification is based primarily on the Unified Soil Classification System (ASTM D 2487) with regard to the particle size and plasticity (See Table No. II), and the Unified Soil Classification group symbols for the soil types are sometimes included with the soil classification. Additionally, the relative portion, by weight, of two or more granular soil types is described in accordance with "Suggested Methods of Test for Identification of Soils" by D.M. Burmister, ASTM Special Technical Publication 479, June 1970, (See Table No. III). Description of the relative soil density or consistency is based upon the penetration records as defined in Table No. IV. The description of the soil moisture is based upon the relative wetness of the soil as recovered and is decribed as dry, moist, wet or saturated. Water introduced into the boring either naturally or during drilling may have affected the moisture condition of the recovered samples. Special terms are used as required to describe soil deposition in greater detail; several such terms are listed in Table V. When sampling gravelly soils with a standard two inch diameter split spoon sampler, the true percentage of gravel is often not recovered due to the relatively small samper diameter. The presence of boulders and large gravel is sometimes, but not necessarily, detected by an evaluation of the sampler blows or through the action of the drill rig as reported by the driller.
- 7. Rock descriptions are based on review of the recovered rock core samples and the driller's notes. Typical rock classification terms are included in Table VI.
- 8. The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Solid stratification lines delineate apparent changes in soil type, based upon review of recovered soil samples and the driller's notes. Dashed lines indicate a lesser degree of certainty with respect to either a change in soil type or where such a change may occur.
- 9. Miscellaneous observations and procedures noted by the driller are shown in this column, including water level observations. It is important to understand that the reliability of the water observations depends upon the soil type (water level does not readily stabilize in a bore hole through fine grained soils), and that any drill water used to advance the boring may have influenced the observations. Typically, the ground water level will fluctuate with seasonal changes in precipitation patterns. One or more perched or trapped water levels may exist in the ground seasonally. Generally, it is prudent to install a groundwater observation well to better define water levels.
- 10. The length of core run is defined as the length of penetration of the core barrel. Core recovery is the length of core recovered divided by the core run length. The Rock Quality Designation (RQD) is the total length of pieces of recovered core exceeding 4 inches divided by the core run length. The size of the core barrel used is also noted.

APPENDIX B

FILL MATERIAL AND PLACEMENT RECOMMENDATIONS

FILL MATERIAL AND PLACEMENT RECOMMENDATIONS

I. Fill Material Recommendations

A. <u>Subbase Stone</u>

Subbase Stone should consist of a crusher run stone meeting the material and gradation requirements of New York State Department of Transportation (NYSDOT), Standard Specifications, Item 304.12 – Type 2 Subbase Course. Subbase Stone for pavement construction should consist of Item 304.12 – Type 2 or Item 304.14 – Type 4 Subbase Course.

B. <u>Structural Fill</u>

Structural Fill should consist of an imported well graded crusher run stone or bankrun sand and gravel, which is free of clay, expansive shale, organics and friable or deleterious particles. Imported Structural Fill should also conform to the following gradation requirements:

Sieve Size	Percent Finer by Weight
3 inch	100
¹ / ₄ inch	25-65
No. 40	5-40
No. 200	0-10

C. Drainage Stone

Drainage Stone should consist of a blend of crusher run stone or crushed gravel meeting the material and gradation requirements of ASTM C33 size 57 Coarse Aggregate as follows:

Sieve Size	Percent Finer by Weight
1-1/2 inch	100
1 inch	95-100
1/2 inch	25-60
No. 40	0-10
No. 8	0-5

Drainage Stone should be wrapped in a non-woven geotextile fabric, such as Mirafi 140 N, or equivalent.

D. <u>General Fill</u>

General Fill may be used for backfill in non-loaded areas outside of foundation, structure, slab-on-grade and paved areas. General Fill may consist of on-site or imported soils, which are free of topsoil, organics, pyritic materials, debris and deleterious materials and are of a moisture content suitable for proper compaction.

II. Fill Placement and Compaction Recommendations

All controlled fill placed beneath foundations, structures, utilities, slab-on-grade and pavement areas should be compacted to a minimum of 95 percent of the maximum dry density as measured by the modified Proctor test (ASTM D1557), or as directed by the geotechnical engineer. Fill placed in non-loaded grass areas can be compacted to a minimum of 90 percent of the maximum dry density (ASTM D1557). Drainage Stone should be compacted with several passes of a steel drum roller or plate tamper (compaction testing is not required for Drainage Stone).

Placement of Structural Fill and Subbase Stone should not exceed a maximum loose lift thickness of 9 inches and should be reduced in conjunction with the compaction equipment used so that the required density is attained. Drainage Stone can be placed in maximum 24 inch thick loose lifts.

Fill should have a moisture content within 2 percent of the optimum moisture content prior to compaction. Subgrades should be properly drained and protected from moisture and frost. Placement of fill on frozen subgrades is not acceptable. It is recommended that all fill placement and compaction be monitored and tested by qualified geotechnical personnel.

III. Quality Assurance Testing

The following minimum laboratory and field quality assurance testing frequencies are recommended to confirm fill material quality and post placement and compaction conditions. These minimum frequencies are based on generally uniform material properties and placement conditions. Should material properties vary or conditions at the time of placement vary (i.e. moisture content, placement and compaction, procedures or equipment, etc.), then additional testing is recommended. Additional testing, if required, should be determined by qualified geotechnical personnel based on evaluation of the actual fill material and construction conditions.

- A. <u>Laboratory Testing of Material Properties</u>
 - Moisture content (ASTM D-2216) 1 test per 4000 cubic yards or no less than 2 tests per each material type.
 - Grain Size Analysis (ASTM D-422) 1 test per 4000 cubic yards or no less than 2 tests per each material type.
 - Modified Proctor Moisture Density Relationship (ASTM D-1557) 1 test per 4000 cubic yards or no less than 1 test per each material type.
- B. <u>Field In-Place Moisture/Density Testing (ASTM D-6938)</u>
 - Backfilling along trenches and foundation walls 1 test per 50 lineal feet per lift.
 - Backfilling Isolated Excavations (i.e. column foundations) 1 test per lift.
 - Filling in open areas for slab-on-grade and pavement construction 1 test per 2500 square feet per lift.

APPENDIX C

INFORMATION REGARDING THIS GEOTECHNICAL ENGINEERING REPORT

IMPORTANT INFORMATION REGARDING THIS GEOTECHNICAL ENGINEERING REPORT

Quality Geo Engineering, P.C. (Quality Geo), has endeavored to prepare this report in accordance with generally accepted geotechnical engineering principles and practices on behalf of QC/QA Laboratories, Inc. (QCQA Labs). Geotechnical engineering analyses and evaluations are based partly on judgment and opinion, and are therefore far less exact than other engineering disciplines. Accordingly, Quality Geo believes that providing the report user with information regarding the preparation and limitations of this report will aid in the proper interpretation and implementation of the conclusions and recommendations presented in this report. The following information is provided in an effort to reduce potential geotechnical-related delays, cost over-runs and other problems that can develop during the design and construction process.

SCOPE OF SERVICES: The scope of this report is limited to the specific items identified in QCQA Labs' Proposal for services for this project. The scope of services is limited to a geotechnical engineering evaluation of the conditions disclosed by the subsurface exploration and does not include any geoenvironmental assessment or investigation for the presence, absence or prevention of any hazardous or toxic materials or conditions (or mold) in the soil, groundwater or surface water within or beyond the project site. Unanticipated environmental problems can lead to significant project cost over-runs and QCQA Labs recommends that the Owner retain a geoenvironmental consultant to discuss risk management guidance.

PROJECT-SPECIFIC FACTORS: The conclusions and recommendations presented in this report were prepared based on project-specific factors described in the report, such as the size, loading, type of construction and intended use of the structure; the location of the structure on the site; planned structure elevation(s) and site grading; other planned or existing site improvements, such as access roads, parking lots, underground utilities; and any other pertinent project information. Changes to the project details may alter the factors considered in development of the report conclusions and recommendations. As such, neither Quality Geo nor QCQA Labs shall be responsible nor liable for problems that may develop if we are not consulted regarding any changes to the project-specific factors that were assumed during preparation of the report.

SUBSURFACE CONDITIONS: The subsurface exploration program for this project consisted of sampling only at discrete test locations. Quality Geo has used judgment to infer the subsurface conditions between the discrete test locations. The conclusions and recommendations presented in this report were based on the subsurface conditions disclosed/inferred at and between the discrete test locations at the time the subsurface exploration program was performed. We point out that surface and subsurface conditions at the site are subject to change subsequent to preparation of this report. Such changes may include floods, earthquakes, groundwater fluctuations, and construction activities at the site and/or adjoining properties. It should be understood that the actual subsurface conditions could vary from the conditions inferred by Quality Geo between and away from the discrete test locations, which could be revealed during construction. As such, QCQA Labs should be retained during construction to confirm that the subsurface conditions are consistent with the conditions disclosed by the subsurface exploration program, and to refine our conclusions and recommendations in the event that the subsurface conditions differ from those disclosed by the subsurface exploration program.

USE OF THIS GEOTECHNICAL ENGINEERING REPORT: This report has been prepared for the exclusive use of our client, and any other parties specifically identified in the report, for specific application to the site and project-specific conditions described in the report. This report should not be applied to any other site or project, or for any uses other than those originally intended without our consent.

MISINTERPRETATION OF THIS REPORT: The conclusions and recommendations presented in this report are subject to misinterpretation by the design team and contractors, which can result in costly problems. The risk of misinterpretation by the design team can be reduced by having appropriate members of the design team confer with QCQA Labs regarding the conclusions and recommendations presented in this report prior to completing the plans and specifications. In addition, QCQA Labs should be retained to review pertinent elements of the design team's final plans and specifications prior to bidding to confirm that the recommendations presented in this report have been properly interpreted and applied. The risk of misinterpretation by contractors can be reduced by retaining QCQA Labs to attend prebid and preconstruction conferences, and to provide construction observation.

COMPONENTS OF THIS REPORT: Subsurface exploration logs, figures, tables and any other report components are subject to misinterpretation if they are separated from this report. This may occur if copies of the boring logs or other report components are given to the contractors during the bid preparation process. To minimize this risk, report components should not be separated from the report and only complete copies of this report should be distributed as appropriate.

ALTERATION OF THIS REPORT: It is a violation of Section 7209 Subdivision 2 of the New York State Education Law for any person to alter this report in any way, except under the direction of a licensed professional engineer. Neither QCQA Labs nor Quality Geo shall be liable for any alterations that are made to this report without our knowledge and written consent.

NEWBURGH ECSD		Phase 5:	2019 Capital Improvement Project
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SECTION 004010

FORM OF PROPOSAL GENERAL CONSTRUCTION

PART 1 GENERAL

01. SUMMARY

Fill in information:

Date:	
TO:	
Newburgh Enlarged City School District:	
124 Grand Street	
Newburgh, New York 12550	
FROM:	
BIDDER NAME & ADDRESS	

02. GENERAL

- Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not, we,
 - having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to GENERAL CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled (Insert project title Here)all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

		DOLLAR
S		
(\$)	
BASE BID		

03. BID GUARANTEE

- The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within [10] days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.
 - 1) In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

04. TIME OF COMPLETION

It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will

NEW	BURGH ECS	D Phase 5: 2019 Capita	l Improvement Project
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05.	start proc ALLOWA Specified A inclu 1)	work within 10 (or Insert number) consecutive calendar d eed and fully complete the work.as indicated in the project NCES (REFERENCE SPECIFICATION SECTION 0 Allowance as indicated in Specification Section 012100. The ided in the Base Bid above. Allowance Amount:	ays of this notice to schedule. (2100) is amount is to be
		\$ 30,000	
	Enter in un will cont 1)	it prices from spec section 012700. (Unit prices are used in be additional quantities of materials and labor not expressly ract documents.) Unit Price No. GC-1: Ceiling Replacement \$ per Unit Price No. GC-2: Abatement of Asbestos containing	anticipation that there y indicated on the
	1)	\$ per	; pipe fitting insulation
	2)	Unit Price No. GC-3: Abatement of Asbestos containing \$ per	; linear pipe insulation
)7.	ALTERNA Enter a wh "DE assu be as decr 1)	ATES (REFERENCE SPECIFICATION SECTION 012 ole dollar amount, even if it is zero (\$ 0), for each Alternate DUCT" for each Alternate Bid. If neither is circled, "DED med. Do not leave any Alternate amount blank. If any am ssumed the Bidder will provide that Alternate for no chang ease, in Contract Price. Alternate No. GC-1; General Construction work associat Numer's Office:	2300) e. Circle "ADD" or UCT" will be ount is blank, it will e, neither increase nor red with relocating the
		ADD/DEDUCT (\$)
			DOLLARS
	2)	Alternate No. GC-2; General Construction work associat sound baffles:	ed with Cafeteria
		ADD/DEDUCT (\$)
			DOLLARS
	3)	Alternate No. GC-3; General Construction work associat located on the Stage:	ed with Casework
		ADD/DEDUCT (\$)
			DOLLARS
	4)	Alternate No. GC-4; General Construction work associat backsplash at casework:	ed with the tile
		ADD/DEDUCT (\$)
			DOLLADO

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		GEN	IERAL CO	NSTRUCTION	
	5)	Alternate No. GC graphics:	-5; General	Construction w	ork associated with digital wall
		ADD/DEDUCT	(\$)
					DOLLARS
	6)	Alternate No. GC alternate floor pat	-6; General terns as no	Construction w	ork associated with providing
		ADD/DEDUCT	(\$)
					DOLLARS
08	BID SECI	IRITV			
00.	Bid Securit	v in the form of a C	ertified or	Cashier's Check	or a Bid Bond in the form
	reau	ired by the Contract	Document	s is attached to a	nd made a part of this Proposal
09.	IRAN DIV	ESTMENT ACT	CERTIFIC	CATION	
	Contractor	to submit with the b	oid, Iran Di	vestment Act Ce	rtification which hereto is made a
	part	of this Form of Prop	osal and is	attached at the e	end of this Form of Proposal.
10.	REPRESE	INTATIONS			-
	By submitt Arcł	ing this Proposal the nitect that	e Bidder rej	presents and cert	ifies to the Owner and the
	1)	It has examined the familiar with the l	ne Contract local condit	Documents, the tions at the place	site of the proposed Work, is where the Work is to be
		performed and ful specifications for and other Contrac this Project.	lly comprel this Projec t Documen	nends the require t in accordance v ts prepared by C	ments and intent of the plans and with the drawings, specifications PL the Owners Consultant, for
	2)	It has examined a Contract Docume to the site. Bidde investigations, ex facilities in order Contract Time an	nd reviewe nts related r shall requ plorations, for the Bid d in accord	d, where applica to existing under ire of the Owner tests or reports w der to perform the ance with the Co	ble, all information and data in the ground facilities at or contiguous or Architect no further with respect to such underground be Work of the Proposal within the entract Documents.
	2)	It has given notice	to the Are	hitaat as raquire	d by the Contract Documents of

- It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
- 4) Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - a) The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and

NEWB	URGH ECSD		Phase 5: 2	019 Capital Improvement Project			
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		GENERAL CONS	TRUCTION				
	c) No	attempt has been ma	de or will be m	ade by bidder to induce any other			
	pe	son, partnership or co	prporation to su	Ibmit or not to submit a bid for			
	the	purpose of restricting	g competition.				
	d) Th	e proposal is based up	oon the materia	ls, equipment and systems			
	required by the Contract Documents, without exception, unless						
	otl	erwise set forth in thi	s Proposal in d	letail.			
11.	CHANGE ORDERS						
	We propose and agree	that the above lump s	sum shall be ad	justed for changes in the Contract			
	Work not inclu	led in unit prices by a	ddition of the f	following costs:			
	1) Profit and	l overhead as permitte	ed in the Gener	al Conditions.			
12.	NON-COLLUSIVE	BIDDING CERTIFI					
	By submission of this	bid, each bidder and e	each person sig	ning on behalf of any bidder			
	certifies, and in	the case of a joint bid	teach party the	are to certifies as to its own			
	1) The price	s in this hid have been	, that to the be	lependently without collusion			
	consultat	on communication of	or agreement f	or the purpose of restricting			
	competit	on as to any matter re	elating to such	prices with any other hidder or			
	with any	competitor:		Fried with any const crouse of			
	2) Unless of	herwise required by la	aw, the prices v	which have been quoted in this			
	bid have	not been knowingly d	isclosed by the	bidder and will not knowingly be			
	disclosed by the bidder prior to opening, directly or indirectly, to any other						
	bidder or to any competitor; and						
	3) No attempt has been made or will be made by the bidder to induce any other						
	person, partnership or corporation to submit or not to submit a bid for the						
	purpose of restricting competition.						
13.	15. ACCEPTANCE When this Depresel is accounted the undersigned agrees to extend into a Contract of the						
	When this Proposal is accepted, the undersigned agrees to enter into a Contract with the						
14	Owner as provi	led in the Form of Ag	greement.				
14.	AFFIRMS The undersioned office		Duou ogolia o	firm and which remains in offerst			
	and will be irrea	ns and agrees that this	s Proposal is a) days after enoping of Pids			
15	TVPF OF RUSINFS		1 lolly-live (43) days after opening of Blds.			
13.	The undersigned here	y represents that it is	a (select with a	circle):			
	1) Corporat	on. Partnership. Indiv	vidual.				
	2) If a Corp	oration, then the under	rsigned further	represents that it is duly qualified			
	as a Corp	oration under the laws	s of New York	State and it is authorized to do			
	business	in this State.					
16.	PLACE OF BUSINE	SS					
	The following is the n	ame and address of the	e person to wh	om all notices required in			
	connection with	this Proposal may be	telephoned, m	ailed, or delivered.			
	Name of	Contact Person:					
	Name of	Business or Firm:					
	Address:						
	Address:						
	Telephor	e:		Fax			
	Email Ac	dress:					

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FEIN: Federal Employer Identification No.:

17. EXECUTION OF CONTRACT

When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

18. ADDENDA

Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

19. ASBESTOS

The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

20. AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation: Signature of Representative of Firm or Corporation: Printed Name and Title: Date: If Corporation – provide Seal:

21. IRAN DIVESTMENT ACT CERTIFICATION

By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1) That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran

NEWBURGH ECSD Phase 5: 2019 Capital Improvement Pr			019 Capital Improvement Project	
13940.20	FORM OF GENERAL CO	PROPOSAL NSTRUCTION	004010 - 6	
Divestm	ent Act of 2012" lis	st created pursuant	t to paragraph (b) subdivision 3 of	
section 165-a of the New York State Finance Law and posted on the OGS			Law and posted on the OGS	
website	at http://www.ogs.n	y.gov/about/regs/	docs/ListofEntities.pdf and	
further of	ertifies that it will r	ot utilize on such	Contract any subcontractor that	
is identi	fied on the Prohibite	ed Entities List. A	Additionally, Bidder/Contractor is	
advised	that should it seek t	o renew or extend	a Contract awarded in response	
to the so	to the solicitation, it must provide the same certification at the time the			
Contrac	Contract is renewed or extended. (See Article in the Instructions to Bidders.)			
Ir	Individual or Legal Name of Firm or Corporation:			
Ν	Mailing Address:			
S	Signature of Representative of Firm or Corporation:			
P	Printed Name and Title:			
D	Date:			
S	SWORN to before me this date:			
Ν	Notary Public Signature and Stamp:			
22. SEXUAL HARASS	MENT POLICY/T	RAINING AFFI	RMATION	
By submission of this bid, each bidder and each person signing on behalf of any bidder			ning on behalf of any bidder	
certifies, and in the case of a joint bid each party thereto certifies as to its own			reto certifies as to its own	
organization, u	organization, under penalty of perjury, that the bidder has and has implemented a			
written policy	addressing sexual h	arassment prevent	tion in the workplace and	

provides annual sexual harassment prevention training to all its employees.

Name of Contractor:	
Name of Business or Firm:	
Address:	
Telephone:	Fax
Email Address:	
Signature and Title of Contractor:	
Date:	

A. END OF SECTION 004010 004010

NEWBURGH ECSD		Phase 5: 20	19 Capital Improvement Project
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SECTION 004020 FORM OF PROPOSAL MECHANICAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

TO: Newburgh Enlarged City School District 124 Grand Street Newburgh, New York 12550 FROM:	Date:	
Newburgh Enlarged City School District 124 Grand Street Newburgh, New York 12550 FROM:	TO:	
124 Grand Street Newburgh, New York 12550 FROM:	Newburgh Enlarged City School District	
Newburgh, New York 12550 FROM:	124 Grand Street	
FROM:	Newburgh, New York 12550	
FROM:		
	FROM:	
BIDDER NAME & ADDRESS	BIDDER NAME & ADDRESS	

1.02 GENERAL

- A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not, we,
 - having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to MECHANICAL CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled (Insert project title Here)all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

		DOLLARS
(\$)	
BASE BID		

1.03 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within [45] days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.
 - 1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will start work within 10 consecutive calendar days of this notice to proceed and fully complete the work [as indicated in the project schedule.]

1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.

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1. Allowance Amount:

\$

25,000.00

1.06 ALTERNATES (REFERENCE SPECIFICATION SECTION 012300.)

A. Enter a whole dollar amount, even if it is zero (\$ 0), for each Alternate. Circle "ADD" or "DEDUCT" for each Alternate Bid. If neither is circled, "DEDUCT" will be assumed. Do not leave any Alternate amount blank. If any amount is blank, it will be assumed the Bidder will provide that Alternate for no change, neither increase nor decrease, in Contract Price.

 Alternate No. MC-1: Mechanical Construction Work associated with relocating the

Alternate No. MC Nurse's Office:	-1; Mechanical Construction Work associated w	ith relocating the
ADD/DEDUCT	(\$)
		DOLLARS

1.07 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.08 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.09 REPRESENTATIONS

- A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
 - 1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
 - 2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
 - It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
 - 4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - a. The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - b. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and
 - c. No attempt has been made or will be made by bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
 - d. The proposal is based upon the materials, equipment and systems required by the Contract Documents, without exception, unless otherwise set forth in this Proposal in detail.

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1.10 CHANGE ORDERS

A. We propose and agree that the above lump sum shall be adjusted for changes in the Contract Work not included in unit prices by addition of the following costs:
1. Profit and overhead as permitted in the General Conditions.

1.11 NON-COLLUSIVE BIDDING CERTIFICATION

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - 1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - 2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 - 3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

1.12 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.13 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.14 TYPE OF BUSINESS

- A. The undersigned hereby represents that it is a (select with circle):
 - 1. Corporation, Partnership, Individual.
 - 2. If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.15 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:		
Name of Business or Firm:		
Address:		
Address:		
Telephone:	Fax	
Email Address:		
FEIN: Federal Employer Identification No.:		

1.16 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.17 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

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Addendum #			Dated:

1.18 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.19 AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
If Corporation – provide Seal:

1.20 IRAN DIVESTMENT ACT CERTIFICATION

- A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:
 - That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-1. Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.) Individual or Legal Name of Firm or Corporation: Mailing Address: Signature of Representative of Firm or Corporation: Printed Name and Title: Date: SWORN to before me this date: Notary Public Signature and Stamp:

NEWBURGH ECSD		Phase 5: 2019 Capital Improvement Proje	
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1.21 SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees. Name of Contractor: Name of Business or Firm: Address: Telephone: Fax Email Address: Signature and Title of Contractor: Date:

END OF SECTION 004020

NEWBURGH ECSD	Phase 3: 2019 Capital Improvement 1		19 Capital Improvement Project
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NEWBURGH ECSD	F	hase 5: 2	019 Capital Improvement Project
13940.20	FORM OF PROPOSAL PLUMBING CONSTRUCTION		004040 - 1

SECTION 004040 FORM OF PROPOSAL PLUMBING CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:	
TO:	
Newburgh Enlarged City School District	
124 Grand Street	
Newburgh, New York	
FROM:	
BIDDER NAME & ADDRESS	

1.02 GENERAL

A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not,

we,

 having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to PLUMBING CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled (Insert project title Here)all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

		DOLLARS
(\$)	
BASE BID		

1.03 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.
 - 1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will start work within 10 consecutive calendar days of this notice to proceed and fully complete the work as indicated in the project schedule.

1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.

	NEWBU	RGH	I ECSD		Phase 5: 2	019 Capital Improvement Project
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		1.	Allowance Amount:			
\$			\$	(Insert Amount)		
1.06	6 AL	TERN	IATES (REFERENCE	SPECIFICATI	ON SECTION 01	2300.)
 A. Enter a whole dollar amount, even if it is zero (\$ 0), for each Alternate. Circle "ADD" or "DEDUCT" for each Alternate Bid. If neither is circled, "DEDUCT" will be assumed. Do leave any Alternate amount blank. If any amount is blank, it will be assumed the Bidde provide that Alternate for no change, neither increase nor decrease, in Contract Price. Alternate No. EC-1;Electrical Work Associated with RTU-1 and RTU-2: 						
						DOLLARS
		<mark>2.</mark>	Alternate No. EC-2; E	Electrical Work	Associated with t	he Fan Coil Unit:
						DOLLARS
		<mark>3.</mark>	Alternate No. EC-3;El ADD/DEDUCT (\$	lectrical work a	ssociated with the	e Unit Ventilator Replacement:)
						DOLLARS
		<mark>4.</mark>	Alternate No. EC-4;El ADD/DEDUCT (\$	lectrical work a	ssociated with the	e Condensing Unit Removal:)
						DOLLARS
		<mark>5.</mark>	Alternate No. EC-5;El ADD/DEDUCT (\$	lectrical work a	ssociated with the	e Dust Collector Replacement:)
						DOLLARS

1.07 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.08 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.09 REPRESENTATIONS

- A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
 - 1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
 - 2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
 - 3. It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
 - 4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
| NEWBURGH ECSD | Phase 5: | 2019 Capital Improvement Project |
|---------------|---|----------------------------------|
| 13940.20 | FORM OF PROPOSAL
PLUMBING CONSTRUCTION | 004040 - 3 |
| | | |

- a. The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- b. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and
- c. No attempt has been made or will be made by bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
- d. The proposal is based upon the materials, equipment and systems required by the Contract Documents, without exception, unless otherwise set forth in this Proposal in detail.

1.10 NON-COLLUSIVE BIDDING CERTIFICATION

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - 1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - 2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 - 3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

1.11 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.12 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.13 TYPE OF BUSINESS

- A. The undersigned hereby represents that it is a (select with circle):
 - 1. Corporation, Partnership, Individual.
 - 2. If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.14 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:		
Name of Business or Firm:		
Address:		
Address:		
Telephone:	Fax	
Email Address:		
FEIN: Federal Employer Identification No.:		

1.15 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter

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should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.16 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

1.17 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.18 AUTHORIZED SIGNATURES FOR PROPOSALS

Indivi	idual or	Legal N	ame of F	irm or Co	orporation	:		
Signa	ature of	Represe	entative c	of Firm or	Corporat	ion:		
Printe	ed Nam	e and Ti	tle:					
Date	:							
If Co	rporatio	n – prov	ide Seal:					

1.19 IRAN DIVESTMENT ACT CERTIFICATION

- A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:
 - That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)
 Individual or Legal Name of Firm or Corporation:
 - Mailing Address: Signature of Representative of Firm or Corporation: Printed Name and Title:

NEWBURGH ECSD	P	hase 5: 2	019 Capital Improvement Project
13940.20	FORM OF PROPOSAL PLUMBING CONSTRUCTION		004040 - 5

Date:

SWORN to before me this date:

Notary Public Signature and Stamp:

1.20 SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

۹.	N. By submission of this bid, each bidder and each person signing on behalf of any bidd certifies, and in the case of a joint bid each party thereto certifies as to its own organ under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sex barassment prevention training to all its employees.			
	Name of Contractor:			
	Name of Business or Firm:			
	Address:			
	Telephone:	Fax		
	Email Address:			
	Signature and Title of Contractor:			
	Date:			

END OF SECTION 004040

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SECTION 004040 FORM OF PROPOSAL ELECTRICAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date: TO:

Newburgh Enlarged City School District

124 Grand Street Newburgh, New York

FROM:

BIDDER NAME & ADDRESS

1.02 GENERAL

- A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not, we,
 - having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to ELECTRICAL CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled (Insert project title Here)all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

		DOLLARS
(\$)	
BASE BID		

1.03 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.
 - 1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will start work within 10 consecutive calendar days of this notice to proceed and fully complete the work as indicated in the project schedule.

NEWBURGH ECSD		Phase 5: 20	019 Capital Improvement Project
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1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

- A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.
 - 1. Allowance Amount:
 - \$ 15,000

1.06 ALTERNATES (REFERENCE SPECIFICATION SECTION 012300.)

- A. Enter a whole dollar amount, even if it is zero (\$ 0), for each Alternate. Circle "ADD" or "DEDUCT" for each Alternate Bid. If neither is circled, "DEDUCT" will be assumed. Do not leave any Alternate amount blank. If any amount is blank, it will be assumed the Bidder will provide that Alternate for no change, neither increase nor decrease, in Contract Price.
 - Alternate No. EC-1; Electrical Construction Work Associated with Work associated with relocating the Nurse's Office ADD/DEDUCT (\$)

(\$)
	DOLLARS

2. Alternate No. EC-2; Electrical Construction Work Associated with the Cafeteria lighting:

ADD/DEDUCT (\$)
	DOLLARS

 Alternate No. EC-3; Electrical work associated with replacing the site lighting as noted on the drawings: ADD/DEDUCT (\$)

DD/DEDUCT	(\$)
		DOLLARS

1.07 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.08 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.09 REPRESENTATIONS

- A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
 - 1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
 - 2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
 - 3. It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
 - 4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

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	 a. The prices in th communication any matter related b. Unless otherwise have not been H disclosed by the or competitor; a c. No attempt has partnership or correstricting comptioned d. The proposal is the Contract Dop Proposal in deta 	is bid have been arrived at inde , or agreement, for the purpose ting to such prices with any other se required by law, the prices w knowingly disclosed by the bidd bidder prior to opening, directly and been made or will be made by corporation to submit or not to sub based upon the materials, equipouments, without exception, un ail.	ependently without collusion, of restricting competition, as to er bidder or with any competitor; hich have been quoted in this bid ler and will not be knowingly ly or indirectly, to any other bidder bidder to induce any other person, ubmit a bid for the purpose of ipment and systems required by alless otherwise set forth in this
1.10 NON-	COLLUSIVE BIDDING	CERTIFICATION	
A. By ce ur 1. 2. 3.	y submission of this bid, ertifies, and in the case of nder penalty of perjury, the The prices in this bid consultation, commu- as to any matter rela- Unless otherwise re- not been knowingly bidder prior to openi- and No attempt has been partnership or corpo- restricting competition	each bidder and each person s of a joint bid each party thereto that to the best of knowledge ar a have been arrived at independ unication, or agreement, for the ting to such prices with any oth quired by law, the prices which disclosed by the bidder and will ng, directly or indirectly, to any n made or will be made by the b ration to submit or not to sub on.	signing on behalf of any bidder certifies as to its own organization, nd belief: dently without collusion, purpose of restricting competition, ner bidder or with any competitor; have been quoted in this bid have not knowingly be disclosed by the other bidder or to any competitor; bidder to induce any other person, whit a bid for the purpose of
1.11 ACCE	PTANCE		
A. W O	/hen this Proposal is acc wner as provided in the	cepted, the undersigned agrees Form of Agreement.	to enter into a Contract with the
1.12 AFFIF	RMS		
A. Ti ar	he undersigned affirms and will be irrevocable for	and agrees that this Proposal is a period of forty-five (45) days	a firm one which remains in effect after opening of Bids.
1.13 TYPE	OF BUSINESS		
A. TI 1. 2.	he undersigned hereby Corporation, Partner If a Corporation, the Corporation under th this State.	represents that it is a (select wit ship, Individual. n the undersigned further repre ne laws of New York State and i	th circle): sents that it is duly qualified as a it is authorized to do business in
1.14 PLAC	E OF BUSINESS		
A. TI co	he following is the name onnection with this Prop Name of Contact Pe	and address of the person to v osal may be telephoned, mailed rson:	whom all notices required in d, or delivered.

FEIN: Federal Employer Identification No.:		
Email Address:		
Telephone:	Fax	
Address:		
Address:		
Name of Business or Firm:		
Name of Contact Person:		

NEWBURGH ECSD		Phase 5: 2019 Capital Improvement Project	
	FORM OF F	PROPOSAL	
13940.20 ELECT CONSTR		RICAL	004040 - 4
		UCTION	

1.15 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.16 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

1.17 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.18 AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or	Legal Name o	of Firm or Corp	oration:		
Signature of	Representativ	e of Firm or C	orporation:		
Printed Nam	e and Title:				
Date:					
lf Corporatio	n – provide Se	eal:			

1.19 IRAN DIVESTMENT ACT CERTIFICATION

- A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:
 - 1. That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)

NEWBURGH ECSD		Phase 5: 2019 Capital Improvement Project	
13940.20 FORM OF CONST		PROPOSAL TRICAL SUCTION	004040 - 5
Individual or I	_egal Name of Fir	m or Corporation:	:
Mailing Addre	ess:		
Signature of I	Representative of	Firm or Corporati	ion:
Printed Name	and Title:		
Date:			
SWORN to be	efore me this date):	
Notary Public	Signature and St	amp:	
1.20 SEXUAL HARASSMENT P	OLICY/TRAININ	G AFFIRMATION	I
 By submission of this b certifies, and in the cas under penalty of perjury addressing sexual hara harassment prevention 	id, each bidder an e of a joint bid eac /, that the bidder h ssment preventio training to all its €	nd each person sig ch party thereto c nas and has imple n in the workplace employees.	gning on behalf of any bidder ertifies as to its own organization, emented a written policy e and provides annual sexual
Name of Contractor:			
Name of Business or Fi	irm:		
Address:	Address:		
Telephone:		Fax	
Email Address:	Email Address: Signature and Title of Contractor: Date:		
Signature and Title of C			
Date:			

END OF SECTION 004040

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13940.20	FORM OF PR WORK CON	OPOSAL SITE STRUCTION	004050 - 1

SECTION 004010 FORM OF PROPOSAL SITE WORK CONSTRUCTION

PART 1 GENERAL

01. SUMMARY

Fill in information:

Date:	
TO:	
Newburgh Enlarged City School District:	
124 Grand Street	
Newburgh, New York 12550	
FROM:	
BIDDER NAME & ADDRESS	

02. GENERAL

- Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not, we,
 - having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to SITE WORK CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled (Insert project title Here)all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

		DOLLARS
(\$)	
BASE BID		

03. BID GUARANTEE

- The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within [10] days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.
 - 1) In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

04. TIME OF COMPLETION

It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will

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start work within 10 (or Insert number) consecutive calendar days of this notice to proceed and fully complete the work.as indicated in the project schedule.

05. ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.

- 1) Allowance Amount: \$ 15.000
 - \$ 15,000

06. UNIT PRICES (REFERENCE SPECIFICATION SECTION 012700)

Enter in unit prices from spec section 012700. (Unit prices are used in anticipation that there will be additional quantities of materials and labor not expressly indicated on the contract documents.)

07. ALTERNATES (REFERENCE SPECIFICATION SECTION 012300)

Enter a whole dollar amount, even if it is zero (\$ 0), for each Alternate. Circle "ADD" or "DEDUCT" for each Alternate Bid. If neither is circled, "DEDUCT" will be assumed. Do not leave any Alternate amount blank. If any amount is blank, it will be assumed the Bidder will provide that Alternate for no change, neither increase nor decrease, in Contract Price.

1) Alternate No. SC-1; Site Work Construction work associated with providing additional concrete walkway at the Addition:

ADD/DEDUCT	(\$)
		DOLLARS

08. BID SECURITY

Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

09. IRAN DIVESTMENT ACT CERTIFICATION

Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

10. **REPRESENTATIONS**

By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that

- 1) It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
- 2) It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.

NEV	VBURGH ECS	SD		Phase 5: 20)19 Capital Improvement Project
1394	0.20		FORM OF PR WORK CON	OPOSAL SITE STRUCTION	004050 - 3
	3)	It has given	n notice to the Ar	chitect as require	ed by the Contract Documents of
	5)	any and all	discrepancies it	has discovered an	accepts the resolution of those
		discrepanci	ies offered by the	e Architect.	
	4)	Pursuant to	New York State	e General Municip	bal Law section 103-d, by
		submission	of this bid, each	bidder and each	person signing on behalf of any
		bidder cert	ifies, and in the c	ase of a joint bid	each party thereto certifies as to
		its own org	anization, under	penalty of perjury	y, that to the best of knowledge
		and belief:			
		a) The	prices in this bid	have been arrive	d at independently without
		collı	ision, communic	ation, or agreeme	nt, for the purpose of restricting
		com	petition, as to an	y matter relating t	to such prices with any other
		bidd	er or with any co	mpetitor;	
		b) Unle	ess otherwise req	uired by law, the	prices which have been quoted in
		lmis	vingly displaced	h knowingly disci	osed by the bidder and will not be
		indi	ectly to any oth	by the blader pric	bit to opening, directly of
		c) No a	ttempt has been	made or will be n	nade by hidder to induce any other
		nerse	on partnership o	r corporation to si	ubmit or not to submit a bid for
		the r	ourpose of restric	ting competition.	
		d) The	proposal is based	1 upon the materia	als, equipment and systems
		requ	ired by the Conti	act Documents, v	vithout exception, unless
		othe	rwise set forth in	this Proposal in c	detail.
11.	CHANGE	ORDERS			
	We propose	e and agree tl	nat the above lun	np sum shall be ac	ljusted for changes in the Contract
	Wor	k not include	d in unit prices b	y addition of the	following costs:
	1)	Profit and o	overhead as perm	nitted in the Gener	ral Conditions.
12.	NON-COI	LUSIVE BI	DDING CERT	IFICATION	
	By submiss	sion of this bi	d, each bidder ar	nd each person sig	gning on behalf of any bidder
	certi	fies, and in th	ne case of a joint	bid each party the	ereto certifies as to its own
	orga	nization, und	er penalty of per	jury, that to the be	est of knowledge and belief:
	1)	The prices	in this bid have t	been arrived at inc	dependently without collusion,
		consultatio	n, communicatio	n, or agreement, I	prices with any other hidder or
		with any or	n, as to any matte	er relating to such	prices with any other bldder of
	2)	Unless oth	erwise required h	w law the prices	which have been quoted in this
	2)	bid have no	ot been knowing	y disclosed by the	e bidder and will not knowingly be
		disclosed b	w the bidder prio	r to opening, dire	ctly or indirectly, to any other
		bidder or to	any competitor	and	
	3)	No attempt	has been made	or will be made by	y the bidder to induce any other
	- /	person, par	tnership or corpo	oration to submit of	or not to submit a bid for the
		purpose of	restricting comp	etition.	

13. ACCEPTANCE

When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

NEWBURGH ECSD		Phase 5: 2019 Capital Improvement Project	
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14. AFFIRMS

The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

15. TYPE OF BUSINESS

The undersigned hereby represents that it is a (select with circle):

- 1) Corporation, Partnership, Individual.
- If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

16. PLACE OF BUSINESS

The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:	
Name of Business or Firm:	
Address:	
Address:	
Telephone:	Fax
Email Address:	
FEIN: Federal Employer Identification No.:	

17. EXECUTION OF CONTRACT

When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

18. ADDENDA

Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

19. ASBESTOS

The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

20. AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:

NEWBURGH ECSD		Phase 5: 20	19 Capital Improvement Project
13940.20	FORM OF PROPOSAL SITE WORK CONSTRUCTION		004050 - 5
If Corporation –	provide Seal:		

21. IRAN DIVESTMENT ACT CERTIFICATION

By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1) That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)

Individual or Legal Name of Firm or Corporation:	
Mailing Address:	
Signature of Representative of Firm or Corporation:	
Printed Name and Title:	
Date:	
SWORN to before me this date:	
Notary Public Signature and Stamp:	

22. SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees. Name of Contractor:

Name of Business or Firm:

Address:

NEWBURGH ECSD Phase 5: 2019 Capital Improvem)19 Capital Improvement Project	
13940.20 FORM OF PF WORK CON		OPOSAL SITE STRUCTION	004050 - 6
Telephone:			Fax
Email Addres	s:		
Signature and	e and Title of Contractor:		
Date			

A. END OF SECTION 004010 004010

13740.20

SECTION 004500 QUALIFICATION STATEMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Fill in information:
 - Project Number: Owner's Name: Name of Bidder:

FEIN (Federal Employer'

1.02 STATEMENT OF BIDDER'S QUALIFICATIONS

- A. Contract For (Circle or Fill In):
 - 1. GC, MC, EC, PC,
- B. Notarized & Submitted By 3 Low Bidders Within 72 Hours of Architect or Construction Manager Request. All questions must be answered, and the data given must be clear and comprehensive. If necessary, questions may be answered on separate attached sheet.
 - 1. Name of Bidder
 - 2. Permanent main office address
 - 3. When organized
 - 4. If a corporation, where incorporated
 - 5. How many years have you been engaged in the contracting business under your present firm or trade name?
 - 6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
 - 7. General character of work performed by your company
 - 8. Has any construction contract to which you have been a party been terminated by the OWNER; have you ever terminated work on a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with a contract for which they furnished a bond on your behalf? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name of owner, architect or Architect, and surety, and name and date of project.
 - 9. Has any officer, partner, member or manager of your organization ever been an officer, partner, member or manager of another organization that had any construction contract terminated by the OWNER; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name of owner, architect or Architect, and surety, and name and date of project.
 - 10. List your experience in work similar to this project.
 - 11. List the background and experience of the principal members of your organization, including officers.
 - 12. List name of project, owner, architect or Architect, contract amount, percent complete and scheduled completion of the major construction projects your organization has in process on this date.
 - 13. List name of project, owner, architect or Architect, contract amount, date of completion and percent of work with own forces of the major projects of the same general nature as this project which your organization has completed in the past five (5) years.
 - 14. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?
 - 15. List name, address and telephone number of a reference for each project listed under items 12 and 13 above.
 - 16. List names and construction experience of the principal individuals of our organization.

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- 17. List the states and categories of construction in which your organization is legally qualified to do business.
- 18. List name, address and telephone number of an individual who represents each of the following and whom OWNER may contact for a financial reference:
 - a. One Surety:
 - b. Two banks:
 - c. Three major material suppliers:
- 19. Attach a financial statement, prepared on an accrual basis, in a form which clearly indicates assets, liabilities and net worth.
 - a. Date of financial Statement:
 - b. Name of firm preparing statement:
- 20. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications and that the answers to the foregoing questions and all statements therein contained are true and correct. Date:

Name of Bidder:
Title:
State of:
County of:
Being duly sworn deposes and says that he is:
Of (Name of Firm or Corporation):
Subscribed and Sworn to before me:
Date:
Notary Public Signature and Stamp:

1.03 BIDDERS STATEMENT

- A. Fill in information: Name of Bidder: Name of Firm or Corporation: Name of Owner and Project Name:
- The Bidder making the Bid for Construction of the above named Project, certifies that I or Β. my authorized representative has personally inspected the job site. The Bidder has relied on its own knowledge and review and interpretation of the Bidding Documents and all relevant plans and specifications, boring logs and other data in submitting his bid and not on any representation made by the Owner, Architect, or any other person, with respect to the character, quality or quantities of Work to be performed, or materials or equipment to be furnished. Bidder acknowledges that any quantities are an estimate only so that Bidder agrees not to seek additional compensation or request an adjustment in any unit price as a result of any variation in quantities or unforeseen site conditions encountered for any reason whatsoever. The Bidder represents that it has reviewed and accepts the applicable Project schedule and all revisions thereto. The Bidder agrees and understands that any such project schedule is incorporated by reference in the Contract Documents and further acknowledges that its failure to adhere to any such project schedule will expose Owner to severe financial hardship. Accordingly, Bidder agrees to exonerate, indemnify and hold Owner harmless from and against any and all losses, damages (including claims made by other Contractors performing Work at the Project) and claims arising out of Bidder's failure to adhere to any project schedule or any modifications, updates or revisions thereto. The Bidder's failure to adhere to and maintain the project schedule, including any revisions thereto, shall be grounds for termination. Print Name of Bidder:

Signature of Bidder: Title: Seal if Bidder is a Corporation:

1.04 PERFORMANCE BOND INFORMATION FORM

Α.	Fill in information:
	City/Town/Village:
	School District:
	Construction Contract Number:
	Name of Contract
	Name of Contractor:
	Address:
	Entity Issuing Security Bond:
	Address:
	Bonding Agent:
	Address:
	Amount of Bid:
	Duration of Bond: From: To:
	Bond Identification Number:

END OF SECTION

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13740.20

A132 AGREEMENT COVER(CMA)

005200 - 1

SECTION 005200 A132 AGREEMENT COVER(CMA)

PART 1 GENERAL

1.01 SUMMARY

A. The following is a "Standard Form of Agreement Between Owner and Contractor – Stipulated Sum, Construction Manager-Adviser Edition," AIA Document A132 - 2019, is bound with this Section. AIA Document A232 – 2019 is a standard form of agreement between Owner and Contractor for use on projects where the basis of payment is a stipulated sum (fixed price), and where, in addition to the Contractor and the Architect, a Construction Manager assists the Owner in an advisory capacity during design and construction. The document has been prepared for use with A232 – 2019, General Conditions of the Contract for Construction, Construction Manager-Adviser Edition. This integrated set of documents is for use on projects where the Construction Manager only serves in the capacity of an adviser to the Owner, rather than as constructor.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

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DRAFT AIA Document A132[™] - 2019

Standard Form of Agreement Between Owner and Contractor,

Construction Manager as Adviser Edition

This "AGREEMENT" made as of the « » day of « » in the year « » (In words, indicate day, month, and year.) Formatted: AIA Agreement Body Text ADDITIONS AND DELETIONS: BETWEEN the "Owner": The author of this document (Name, legal status, address, and other information) has added information needed for its completion. The author may also have Newburgh Enlarged City School District revised the text of the 124 Grand St. original AIA standard form. Newburgh, NY 12550 « »« » 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. and the "Contractor": (Name, legal status, address, and other information) This document has important legal consequences. consultation with an attorney is encouraged with respect to its completion or modification. « »« » « » « » This document is intended to be used in conjunction « » to be used in conjunction with AIA Documents A232m-2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132m-2019, Standard Form of Agreement Between Owner and Productor Construction for the following "Project": (Name, location, and detailed description) Newburgh Enlarged City School District Phase 53: 2019 Capital Improvements Project and Architect, Construction Manager as Adviser Edition; and C132™-2019, Standard Form of Agreement Between Formatted: Font: (Default) Times New Roman, Not <u>009</u>**≪**≫ Bold <u>~ > </u> owner and Construction Manager as Adviser. AIA Document A232™-2019 is adopted in this document by Formatted: Font: (Default) Times New Roman, Not Bold The "Construction Manager": reference. Do not use with other general conditions (Name, legal status, address, and other information) unless this document is modified. The Palombo Group Inc. 22 Noxon St. Poughkeepsie, NY 12601 « »« » « » ELECTRONIC COPYING of any The "Architect": portion of this AIA® Document to another electronic file is (Name, legal status, address, and other information) prohibited and constitutes a CPL Architects, Engineers, Landscape Architect and Surveyor, D.P.C. violation of copyright laws as set forth in the footer of d/b/a CPL this document. 50 Front Street

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In consideration of the mutual promises set forth below and for other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Owner and Contractor agree as follows. Each of Owner and Contractor may hereinafter be referred to as a "Party" and collectively the "Parties". The Owner and Contractor agree as follows.





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TABLE OF ARTICLES

- THE CONTRACT DOCUMENTS 1
- THE WORK OF THIS CONTRACT 2
- DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION 3
- CONTRACT SUM 4
- PAYMENTS 5
- 6 DISPUTE RESOLUTION
- TERMINATION OR SUSPENSION 7
- **MISCELLANEOUS PROVISIONS** 8
- ENUMERATION OF CONTRACT DOCUMENTS ٩

EXHIBIT A INSURANCE AND BONDS EXHIBIT B DETERMINATION OF THE COST OF THE WORK

ARTICLE 1 THE CONTRACT DOCUMENTS

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

§ 1.1 THIS PROJECT IS SUBJECT TO A PROJECT LABOR AGREEMENT COVERING CONSTRUCTION OF CONSTRUCTION PROJECTS, NEWBURGH ENLARGED CITY SCHOOL DISTRICT EFFECTIVE FEBRUARY 1, 2021, BETWEEN NEWBURGH ENLARGED CITY SCHOOL DISTRICT, THE HUDSON VALLEY BUILDING AND CONSTRUCTION TRADES COUNCIL ON BEHALF OF ITSELF AND ITS AFFILIATED LOCAL UNIONS, AND SIGNATORY LOCAL UNIONS ON BEHALF OF THEMSELVES AND THEIR MEMBERS ("PLA"), WHICH IS ATTACHED TO THE GENERAL CONDITIONS AS APPENDIX "A", THE PROVISIONS OF WHICH ARE EXPRESSLY INCORPORATED HEREIN BY REFERENCE AND MADE A PART OF THIS CONTRACT AS FULLY AS IF SET FORTH AT LENGTH HEREIN. TO THE EXTENT OF ANY CONFLICT BETWEEN THE GENERAL/SUPPLEMENTAL CONDITIONS AND THE PLA, THE PROVISIONS IN THE PLA WILL CONTROL THE CONTRACTORS AND SUBCONTRACTORS OF ALL TIERS MUST HAVE EXECUTED A LETTER OF ASSENT AGREEING TO BE BOUND BY AND TO COMPLY WITH ALL PROVISIONS OF THE PLA.

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 DATES OF SUBSTANTIAL COMPLETION

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

(Check one of the following boxes.)

1

- [« X »] The date of this Agreement (also referred to as the "Contract").
- [« »] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:

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

~	>>

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

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

§ 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time only as provided in the Contract Documents (which Contract Time may also sometimes be hereinafter referred to as the "Required Substantial Completion Date"), the date of Substantial Completion of the Work of all of the Contractors for the Project will be: (Insert the date of Substantial Completion of the Work of all Contractors for the Project.)

« Refer to General Conditions, Article 8.4 »

§ 3.3.2 Subject to adjustments of the Contract Time only as provided in the Contract Documents (which Contract Time may also sometimes be hereinafter referred to as the "Required Substantial Completion Date"), if portions of the Work of all of the Contractors for the Project are to be completed prior to Substantial Completion of the entire Work of all of the Contractors for the Project, the Contractors shall achieve Substantial Completion of such portions by the following dates:

Portion of Work

Substantial Completion Date

§ 3.3.3 Without limitation to any other applicable provisions of the Contract, see also Article 8 of the General Conditions of the Contract for Construction A232 - 2009 as modified in this Contract.

§ 3.4 When the Work of this Contract, or any Portion Thereof, is Substantially Complete

§ 3.4.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall substantially complete the entire Work of this Contract: (Check one of the following boxes and complete the necessary information.)

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

[« »] By the following date: « »

§ 3.4.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of this Contract are to be substantially complete prior to when the entire Work of this Contract shall be substantially complete, the Contractor shall substantially complete such portions by the following dates:

	ortion	of	Work
--	--------	----	------

Date to be substantially complete

§ 3.4.3 If the Contractor fails to substantially complete the Work of this Contract, or portions thereof, as provided in this Section 3.4, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the "Contract Sum" in current funds for the Contractor's timely and full performance of the Contract subject to the terms of this Contract and applicable law. The Contract Sum shall be one of the following.

(Check the appropriate box.)

[« X »] Stipulated Sum, in accordance with Section 4.2 below

[« »] Cost of the Work plus the Contractor's Fee, in accordance with Section 4.3 below

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[« »] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below.)

§ 4.2 Stipulated Sum § 4.2.1 The Contract Sum shall be « » (\$ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2.2 A § 4.2.2.1	Iternates Alternates, if any, included in the Contract	Sum:	
	Item	Price	
§ 4.2.2.2 execution (Insert b)	Subject to the conditions noted below, the f n of this Agreement. Upon acceptance, the C elow each alternate and the conditions that a	Following alternates may be a Owner shall issue a Modificat must be met for the Owner to	accepted by the Owner following tion to this Agreement. D accept the alternate.)
	ltem	Price	Conditions for Acceptance
§ 4.2.3 A (<i>Identify</i>	llowances, if any, included in the Contract S each allowance.)	Sum:	
	Item	Price	
§ 4.2.4 U (Identify	Init prices, if any: the item and state the unit price, and quanti	ity limitations, if any, to whic	h the unit price will be applicable.)
	ltem	Units and Limitations	s Price per Unit (\$0.00)
§ 4.3 Cos § 4.3.1 T § 4.3.2 T (State a l	st of the Work Plus Contractor's Fee with the Cost of the Work is as defined in Exhibit the Contractor's Fee: hump sum, percentage of Cost of the Work of	out a Guaranteed Maximum t B, Determination of the Cos r other provision for determin	Price st of the Work. ning the Contractor's Fee.)
« »			
§ 4.3.3 T	he method of adjustment of the Contractor's	s Fee for changes in the Wor	k:
« »			
§ 4.3.4 L	imitations, if any, on a Subcontractor's over	rhead and profit for increases	s in the cost of its portion of the Work:
« »			
§ 4.3.5 R paid at th	ental rates for Contractor-owned equipment a place of the Project.	t shall not exceed « » percen	t (« » %) of the standard rental rate
§ 4.3.6 U (Identify	Init prices, if any: the item and state the unit price and quantit	ty limitations, if any, to whicl	h the unit price will be applicable.)

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item	Units and Limitations	Price per Unit (\$0.00)
§ 4.3.7 The Contractor shall prepare and submit Agreement, a written Control Estimate for the C items in Section B.1 of Exhibit B, Determinatio	t to the Construction Manager, w Owner's review and approval. Th n of the Cost of the Work.	within 14 days of executing this he Control Estimate shall include the
§ 4.4 Cost of the Work Plus Contractor's Fee § 4.4.1 The Cost of the Work is as defined in Ex	with a Guaranteed Maximum I xhibit B, Determination of the C	Price lost of the Work.
§ 4.4.2 The Contractor's Fee: (State a lump sum, percentage of Cost of the Wo	ork or other provision for detern	nining the Contractor's Fee.)
« »		
§ 4.4.3 The method of adjustment of the Contra	ctor's Fee for changes in the Wo	ork:
« »		
§ 4.4.4 Limitations, if any, on a Subcontractor's	s overhead and profit for increas	es in the cost of its portion of the Work
« »		
§ 4.4.5 Rental rates for Contractor-owned equip paid at the place of the Project.	oment shall not exceed « » perce	ent (« » %) of the standard rental rate
§ 4.4.6 Unit Prices, if any: (Identify the item and state the unit price and qu	uantity limitations, if any, to whi	ich the unit price will be applicable.)
Item	Units and Limitations	Price per Unit (\$0.00)
 § 4.4.7 Guaranteed Maximum Price § 4.4.7.1 The Contract Sum is guaranteed by the deductions by Change Order as provided in the Documents as the Guaranteed Maximum Price. exceeded shall be paid by the Contractor withou § 4.4.7.2 Alternates § 4.4.7.2.1 Alternates, if any, included in the Gu 	e Contractor not to exceed « » (Contract Documents. This maxi Costs which would cause the G ut reimbursement by the Owner. Jaranteed Maximum Price:	\$ « »), subject to additions and imum sum is referred to in the Contract uaranteed Maximum Price to be
Item	Price	
§ 4.4.7.2.2 Subject to the conditions noted below execution of this Agreement. Upon acceptance, (<i>Insert below each alternate and the conditions</i>	w, the following alternates may be the Owner shall issue a Modific that must be met for the Owner	be accepted by the Owner following cation to this Agreement. to accept the alternate.)
	Price	Conditions for Acceptance
Item		
tem § 4.4.7.3 Allowances, if any, included in the Gu (<i>Identify each allowance.</i>)	aranteed Maximum Price:	
§ 4.4.7.3 Allowances, if any, included in the Gu (<i>Identify each allowance.</i>) Item	naranteed Maximum Price: Price	
Item § 4.4.7.3 Allowances, if any, included in the Gu (<i>Identify each allowance.</i>) Item	uaranteed Maximum Price: Price	

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(Identify each assumption.)

« »

§ 4.4.8 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes, or equipment, all of which, if required, shall be incorporated by Change Order.

§ 4.4.9 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 4.4.7.4. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 4.4.7.4 and the revised Contract Documents.

§ 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any, to be assessed in accordance with Section 3.4.)

« »

§ 4.6 Other:

(Insert provisions for bonus, cost savings or other incentives, if any, that might result in a change to the Contract Sum.)

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

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

§ 5.1.2.1 Based upon the approved Schedule of Values, a "pencil copy" of the Application for Payment shall be submitted by Contractor to Construction Manager no later than the 25th day of each calendar month for Work performed and materials installed during that month (estimated through the end of that month). Notwithstanding anything in the Contract Documents to the contrary, Changes in the Work will only be paid as per a written Change Order signed by the Owner.

§ 5.1.2. After the "pencil copy" is approved by the Construction Manager and Architect, Contractor shall transmit four (4) signed and notarized copies of the original Application for Payment, with certified original payroll transcripts and any other documentation required by the Contract Documents, to the Construction Manager by the first (1st) day of the month following the month for which payment is sought, for certification by Construction Manager and Architect. Notwithstanding anything in the Contract Documents to the contrary, Contractor's failure to submit a proper Application for Payment with certified original payroll transcripts and any other proper documentation required by the Contract Documents shall serve to extend the timeframe for payment as required for Construction Manager's and Architect's review.

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the <u>first «1st</u> » day of a month (as provided above in Section 5.1.2.2), the Owner shall make payment of the amount certified to the Contractor not later than the <u>first «1st</u> » day of the « <u>following</u>» month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment of the amount certified shall be made by the Owner <u>in the amount certified by Construction Manager and Architect not later than «thirty » («30 ») days after the Construction Manager receives the Application for Payment (provided further that the Application for Payment is otherwise approvable in accordance with the terms of the Contract). (*Federal, state or local laws may require payment within a certain period of time.*)</u>

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§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§-5.1.4.1-Each Application for Payment shall be based on the <u>most recent</u> Schedule of <u>V</u>alues submitted by the Contractor in accordance with the Contract Documents. The sSchedule of +<u>V</u>alues shall allocate the entire Contract Sum among the various portions of the Work- and be prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment. When requested by Construction Manager, the Contractor shall submit with the Application for Payment (and without limitation to other documentation required to be submitted), current and duly executed waivers of mechanic's liens from subcontractors or lower tier sub-subcontractors establishing receipt of prior payments. Payment shall not be released to the Contractor until the Owner receives certified payroll for Contractor's employees and employees of Subcontractors performing Work on the Project.

§ 5.1.4.12 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.

§ 5.1.4.23 In accordance with AIA Document A232[™]–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, and 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 total Contract Sum allocated to that portion of the Work in the Schedule of Values, less retainage of five percent (5%).;
- .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 five percent (5%);
- 3 Subtract the aggregate of previous payments made by the Owner; and
- 4 Subtract amounts, if any, for which the Construction Manager or Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of the General Conditions.

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

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

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

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architecthas previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;
- 3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- 4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole of in part, as provided in Article 9 of AIA Document A232 2019; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.4.3 The progress payment amount determined in accordance with Section 5.1.4.2 shall be further modified under the following circumstances:

.1 Upon Substantial Completion of the Work as provided in Section 5.1.4.4 below.

§ 5.1.4.4 Reduction or limitation of retainage, if any, shall be as follows:

Once Work on the Project reaches Substantial Completion, as certified by the Architect, all retainage held by the Owner on account of Certificates for Payment may be released, except for an amount equal to 200% of the value of (i) all

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punch-list items and other Work required to be completed by Contractor and (ii) Owner's unsettled Claims, each as determined by the Architect, Construction Manager and/or Owner in their discretion. At Final Completion of the Project, in connection with Contractor's Final Payment, the remainder of the held retainage shall be returned to Contractor subject to all other terms and conditions of this Contract.

§ 5.1.5 Progress Payments Where the Contract Sum is Based on the Cost of the Work without a Guaranteed Maximum Price

§ 5.1.5.1 With each Application for Payment, the Contractor shall submit the cost control information required in Exhibit B, Determination of the Cost of the Work, along with payrolls, petty cash accounts, receipted invoices, or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor, plus payrolls for the period covered by the present Application for Payment, less that portion of the payments attributable to the Contractor's Fee.

§ 5.1.5.2 Applications for Payment shall show the Cost of the Work actually incurred by the Contractor through the end of the period covered by the Application for Payment and for which the Contractor has made or intends to make actual payment prior to the next Application for Payment.

§ 5.1.5.3 In accordance with AIA Document A232 2019 and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

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

- .1 The Cost of the Work as described in Exhibit B, Determination of the Cost of the Work;
- 2 That portion of Construction Change Directives that the Architect determines in the Architect's professional judgment, to be reasonably justified; and
- 3 The Contractor's Fee computed upon the Cost of the Work described in the preceding Section 5.1.5.3.1.1 at the rate stated in Section 4.3.2 or if the Contractor's Fee is stated as a fixed sum in Section 4.3.2 an amount which bears the same ratio to that fixed sum Fee as the Cost of the Work included in Section 5.1.5.3.1.1 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

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

- .1 The aggregate of any amounts previously paid by the Owner;
 - 2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232 2019;
 - 3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
 - 4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232 2019;
 - .5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.5.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and
 - 6 Retainage withheld pursuant to Section 5.1.7.

§ 51.5.4 The Owner, Construction Manager and Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§-51.5.5 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor, and such action shall not be deemed to be a representation that (1) the Construction Manager and Architect have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Article 5 or other supporting data; (2) that the Construction Manager and Architect have made exhaustive or continuous on site inspections; or (3) that the Construction Manager and Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole inferest of the Owner.

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§ 5.1.5.6 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.

§ 5.1.5.7 If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

§ 5.1.6 Progress Payments Where the Contract Sum is Based on the Cost of the Work with a Guaranteed Maximum Price

§ 5.1.6.1 With each Application for Payment, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

§ 5.1.6.2 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 Guaranteed Maximum Price among: (1) the various portions of the Work; (2) any contingency for costs that are included in the Guaranteed Maximum Price but not otherwise allocated to another line item or included in a Change Order; and (3) the Contractor's Fee.

§ 5.1.6.2.1 The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.6.2.2 The allocation of the Guaranteed Maximum Price under this Section 5.1.6.2 shall not constitute a separate guaranteed maximum price for the Cost of the Work of each individual line item in the schedule of values.

§ 5.1.6.2.3 When the Contractor allocates costs from a contingency to another line item in the schedule of values, the Contractor shall submit supporting documentation to the Architect and Construction Manager,

§ 5.1.6.3 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. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that has actually been incurred by the Contractor on account of that portion of the Work and for which the Contractor has made payment or intends to make payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values

§ 5.1.6.4 In accordance with AIA Document A232 2019, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

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

- .1 That portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the most recent schedule of values;
- That portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction or, if approved in writing in advance by the Owner, suitably stored off the site at a location agreed upon in writing;
- That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and
- The Contractor's Fee, computed upon the Cost of the Work described in the preceding Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 at the rate stated in Section 4.4.2 or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum fee as the Cost of the Work included in Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

§ 5.1.6.4.2 The amount of each progress payment shall then be reduced by: .1 The aggregate of any amounts previously paid by the Owner;

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- The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232-2019;
- Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232 2019;
- The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.6.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation: and
- Retainage withheld pursuant to Section 5.1.7. 6

§ 5.1.6.5 The Owner and the Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.6.6 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor and such action shall not be deemed to be a representation that (1) the Construction Manager or Architect have made a detailed examination, audit, or arithmetic verification of the documentation submitted in accordance with Section 5.1.6.1 or other supporting data; (2) that the Construction Manager or Architect have made exhaustive or continuous on site inspections; or (3) that the Construction Manager or Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.6.7 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.

§ 5.1.6.8 If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due: (Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« <u>5%</u> »

§ 5.1.7.1.1 The following items are not subject to retainage:

(Insert any items not subject to the withholding of retainage, such as general conditions, insuran etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to when the entire Work of this Contract is substantially complete, including modifications for completion of portions of the Work as provided in Section 3.4.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, when the Work of this Contract is substantially complete, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted when the Work of this Contract is substantially complete shall not include retainage as follows:

(Insert any other conditions for release of retainage when the Work of this Contract is substantially complete, or upon Substantial Completion of the Work of all Contractors on the Project or portions thereof.)

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§ 5.2 Final Payment

§ 5.2.1 Final Payment Where the Contract Sum is Based on a Stipulated Sum

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

- the Contractor has fully performed the Contract except for the Contractor's responsibility to correct .1 Work as provided in Section 12.2Article 12 of AIA Document A232-2019, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 all required documentation has been submitted to the Construction Manager and been reviewed and approved by Construction Manager and Architect and all sign-offs and/or approvals of any governmental agencies or authorities relevant to the Work or Project have been obtained; and a final Certificate for Payment or Project Certificate for Payment has been issued by the Construction Manager and Architect.a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

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

§ 5.2.2 Final Payment Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

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

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232 2019, and to satisfy other requirements, if any, which extend beyond final payment;
- 2 the Contractor has submitted a final accounting for the Cost of the Work, pursuant to Exhibit B, Determination of the Cost of the Work and a final Application for Payment; and
- .3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect in accordance with Exhibit B, Determination of the Cost of the Work.

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

§ 5.3 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. (Insert rate of interest agreed upon, if any.)

<mark>« » % « »</mark>

ARTICLE 6 DISPUTE RESOLUTION

\$ 6.1 The Owner and Contractor shall provide all notices and commence all Claims and causes of action, whether in contract, tort, or otherwise, against the other arising out of or related to this Contract within the period required by and strictly pursuant to all other requirements of applicable law.

§ 6.2 No action or proceeding shall be maintained by either of the Parties to this Contract, concerning this Contract or any portion thereof or any Claim or dispute relating thereto or arising out of or related to the Work performed or required hereunder, except before the courts of appropriate jurisdiction of the State of New York located in the County of Orange. In connection with the foregoing, the Owner and Contractor hereby consent to the exclusive jurisdiction of the Supreme Court of the State of New York, County of Orange and waive any challenge to the venue or personal jurisdiction of such court.

§ 6.3 Notwithstanding anything to the contrary set forth in any of the Contract Documents, arbitration shall not be a permitted form of dispute resolution for matters concerning this Contract or any portion thereof or any Claim

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out of or related to the Work performed hereunder shall only be subject to litigation as p Section 6.2. § 6.4 This Contract shall, in all respects, be subject to and construed in accordance wi of New York without giving effect to the conflict-of-laws provisions thereof that would di resolution of any issue hereunder to the laws of another jurisdictionInitial Decision Make The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232-24 appoint below another individual, not a party to this Agreement, to serve as Initial Decision Make If the parties mutually agree, insert the name, address and other contact information of the Initia	th the laws of the State rect or refer the	Formatted: Font: Bold
Section 0.2. § 6.4 This Contract shall, in all respects, be subject to and construed in accordance will of New York without giving effect to the conflict-of-laws provisions thereof that would di resolution of any issue hereunder to the laws of another jurisdiction Initial Decision Make The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232-20 appoint below another individual, not a party to this Agreement, to serve as Initial Decision Make If the parties mutually agree, insert the name, address and other contact information of the Initia	th the laws of the State rect or refer the	Formatted: Font: Bold
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resolution of any issue hereunder to the conflict-of-laws provisions hereof that would un resolution of any issue hereunder to the laws of another jurisdictionInitial Decision Make The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232-21 appoint below another individual, not a party to this Agreement, to serve as Initial Decision Make If the parties mutually agree, insert the name, address and other contact information of the Initia	rect or refer the	Formatted: Font: (Default) Times New Roman
The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232-24 appoint below another individual, not a party to this Agreement, to serve as Initial Decision Make If the parties mutually agree, insert the name, address and other contact information of the Initia	¥F (1)	
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than the Architect.)		
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§ 6.2 Binding Dispute Resolution		
For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document.	A232-2019, the method of	Formatted: AIA Subheading
binding dispute resolution shall be as follows: (Chack the appropriate here)		
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f the Owner and Contractor do not select a method of binding dispute resolution, or do not subs	equently agree in writing	Formatted: AIA Subheading, Indent: Left: 0", First line
o a binding dispute resolution method other than litigation, Claims will be resolved by litigation i urisdiction	in a court of competent	0", Tab stops: Not at 1.18"
and didin.		Formatted: AIA Subheading
ARTICLE 7 TERMINATION OR SUSPENSION	$\gamma / $	Formatted: AIA Subheading, Indent: Left: 0", First line
3 7.1 Where the Contract Sum is a Stipulated Sum 5 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in the ma	dified Article 14 of	0", Tab stops: Not at 0.5"
AIA Document A232–2019 (which has been modified for inclusion as a Contract Document).		Formatted: AIA Subheading
7.1.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article A232 2019 then the Owner shall pay the Contractor a termination fee as follows:	14 of AIA Document	
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor foli	lowing a termination for	
the Owner's convenience.)		
↔»		
/		
§ 7.4.2 The Work may be suspended by the Owner as provided in <u>the modified</u> Article 14 of A	IA Document A232–	
2019 (which has been mouthed for inclusion as a Contract Document).		
§ 7.2 Where the Contract Sum is Based on the Cost of the Work with or without a Guar	anteed Maximum Price	
7.2.1 termination	a 14 of AIA Document	
$\frac{7.2.1.1}{2.2.2}$ The Contract may be terminated by the Owner of the Contractor as provided in Article	le 14 of AIA Document	

(1279816291)

this AIA" Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum exter possible under the law. This draft was produced by AIA software at 09:18:05 ET on 02/17/2020 under Order No.389531304 which expires on 12/10/2020, and is not for resale. User Notes: (1279816291)

§ 7.2.1.2 Termination by the Owner for Cause

§ 7.2.1.2.1 If the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232–2019, the Owner shall then only pay the Contractor an amount as follows:

- .1 Take the Cost of the Work incurred by the Contractor to the date of termination;
- .2 Add the Contractor's Fee, computed upon the Cost of the Work to the date of termination at the rate stated in Section 4.3.2 or 4.4.2, as applicable, or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion;
- Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract the costs and damages incurred, or to be incurred, by the Owner under Article 14 of AIA Document A232 2019.

§ 7.2.1.2.2 When the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, if the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232-2019, the amount, if any, to be paid to the Contractor under Article 14 of AIA Document A232-2019 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount calculated in Section 7.2.1.2.1.

§ 7.2.1.2.3 The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor that the Owner elects to retain and that is not otherwise included in the Cost of the Work under Section 7.2.1.2.1.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 7, execute and deliver all such papers and take all such steps, including the legal assignment of subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under subcontracts or purchase orders. All Subcontracts, purchase orders and rental agreements entered into by the Contractor will contain provisions allowing for assignment to the Owner as described above.

§ 7.2.1.3 Termination by the Owner for Convenience

If the Owner terminates the Contract for convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows: (Insert the amount of or method for determining the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.3 Suspension

of this Agreement.

~~~

The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232 2019/in such case, the Contract Sum and Contract Time shall be increased as provided in Article 14 of AIA Document A232 2019, except that the term "profit" shall be understood to mean the Contractor's Fee as described in Section 4.3.2 or 4.4.2, as applicable,

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Any reference in this Agreement or the other Contract Documents to "AIA Document A232–2019 General Conditions", "AIA Document A232–2019", "A232–2009 General Conditions", "A232–2019", "General Conditions", "A232–2019", "General Conditions", "A1A Document A232–2019", "General Conditions", "A1A Document A232–2019, General Conditions", or the like, shall be deemed to expressly refer to the modified AIA Document A232–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition (Newburgh Enlarged City School District Modified Form – 2021) included as a Contract Document as provided in Section 9.1.2 below. Where reference is made in this Agreement to a provision of AIA Document A232–2019 or another Contract Document, the reference refers to that provision as amended or supplemented therein and/or by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the greater of 0% or that specified and required by applicable law,

§ 8.32 The Owner's representative:

(Name, address, email address, and other information)

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« » « » « »

§ 8.43 The Contractor's representative:

(Name, address, email address, and other information)

« » « » « » « » « » «

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

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in Articles 11 and 11A of AIA Document A232-2019.AIA Document A132™ 2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A132™ 2019, Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A232 2019, may be given in accordance with AIA Document E203TM 2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth helow:

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

§ 8.7 Relationship of the Parties

Where the Contract is based on the Cost of the Work plus the Contractor's Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

§ 8.85 Other provisions:

§ 8.5.1 Contractor represents and warrants the following to the Owner (in addition to and without any limitation upon any other representations, warranties and/or guarantees contained in the Contract Documents) as an inducement to the Owner to execute this Contract and such representations and warranties shall survive any termination of this Contract and the final completion of the Work:

§ 8.5.1.1 Contractor and all of its Subcontractors are financially solvent, able to pay all debts as they mature and are possessed of sufficient working capital to complete the Work and perform all obligations under this Contract;

§ 8.5.1.2 Contractor is able to furnish all labor, material, plant, tools, supplies, and equipment required to complete all of the Work and perform all of its obligations under the Contract;

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of t	ensed by all governmental, put the Contract;	blic, and quasi-public authoritie	es having jurisdictio	n over it and over the V	lork
<u>§ 8</u> pov	3.5.1.4 Contractor's execution of wers;	of this Agreement and its perfo	rmance hereunder is	s within its duly authori	zed
8.5.1.5 Con nanagemen ize, comple uch a Contr	ntractor possesses a high level t, construction rules and regula exity and nature of this particu ractor.	of experience and expertise in ations on public school propert lar Project, and that it will perf	the business admin y, and the superinte orm the Work with	istration, construction ndence on projects of the the care and diligence of	<u>is</u> <u>f</u>
					
RTICLE 9 9.1 This A .1 .2 .3 .4	ENUMERATION OF CONTR sgreement is comprised of the This modified and executed Owner and Contractor, Cor AIA Document A132™ 2(The modified AIA Docume Construction Manager as A and the Hudson Valley Bui AIA Document E203™ 20 indicated below:	ACT DOCUMENTS following documents: LAIA Document A132 TM –2019 Istruction Manager as Adviser 19, Exhibit A, Insurance and I nt A232 TM –2019, General Cor dviser Edition <u>and includes the</u> <u>Iding and Construction Trades</u> 13, Building Information Mod	9, Standard Form of Edition Bonds Exhibit nditions of the Contr <u>e Project Labor Agre Council.</u> leling and Digital Di	Agreement Between ract for Construction, eement between the Ow ata Exhibit, dated as	ner
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-	D				
.5	Drawings		ĺ		
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.6	Specifications				
	Section	Title	Date	Pages	
.7	Addenda, if any:				-
	Number	Date	Pages		
	Portions of Addenda relatir	g to bidding or proposal requir	rements are not part	of the Contract Docum	ents Formatted: AIA Body Text Hanging
Q	unless the bidding or propo	sal requirements are also enum	nerated in this Articl	e 9.	Formatted: AIA Body Text Hanging, Indent: Left: 0 First line: 0", Tab stops: Not at 0.5"
.o (Cl	neck all boxes that apply and in	clude appropriate information	identifying the exh	ibit where required.)	Formatted: AIA Body Text Hanging
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	»] AIA Document E235 TM . Edition, dated as indicated	-2019, Sustainable Projects Ex below:	hibit, Construction	Manager as Adviser	 Formatted: AIA Body Text Hanging, Indent: Left: 0 Tab stops: Not at 1.31"
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sample forms, the Contractor requirements, and other info- proposals, are not part of the documents should be listed h «.1 Information to Bidders and of any conflict between the C Contract Documents shall co	rs bid or proposal, portions of Addender rmation furnished by the Owner in anti- e Contract Documents unless enumeration ere only if intended to be part of the Co Contractor's Bid Proposal are part of the Contractor's Bid Proposal and the other introl unless Contractor's Bid Proposal juirements, and/or obligations on the pa	a relating to bidding or proposal ipation of receiving bids or ed in this Agreement. Any such ntract Documents.) e Contract Documents. To the extent Contract Documents, the other would provide for more stringent or rt of Contractor, in which case such	
greater terms, conditions, req greater terms, conditions, req »	vand year first written above.	trol.	
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13740.20

PROJECT FORMS AND RELATED DOCUMENTS

006000 - 1

SECTION 006000 PROJECT FORMS AND RELATED DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

A. This Section lists the project forms used for administration of the project as well as documents used for administration and logistics

1.02 FORMS

- A. The following forms are contained within the conditions of the contract section:
 - 1. FRONT END SUBMISSION LOG
 - 2. PROJECT REQUEST FOR INFORMATION (RFI) FORM
 - 3. SUBCONTRACTOR LIST
 - 4. ALLOWANCE DISBURSEMENT FORM
 - 5. SUBSTITUTION REQUEST FORM
 - 6. SUBMITTAL COVER
 - 7. INFORMATION BULLETIN
 - a.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PROCEDURES

- A. Front End Submission Log: This document is a checklist of the required submissions. Refer to Bidding Requirements, Section entitled "Instructions to Bidders" and Division 1, Specification Section entitled "SUBMITTAL PROCEDURES" for submission procedures.
- B. Project Request For Information (RFI) Form: This form is to be used for information requests. The forms are filled out by any party to the contract and sent to the Architect/Engineer. The Architect/Engineer shall number RFI before processing.
- C. Subcontractor List: This document is to be used identify subcontractors. The forms are filled out by each Prime Contractor for all proposed subcontractors and sent to the Architect/Engineer in accordance with. Division 1, section entitled "SUBMITTAL PROCEDURES"
- D. Allowance Disbursement Form: the Architect/Engineer shall issue this document after all parties have agreed to the conditions of change to be charged to the Allowance Amount in accordance with Division 1, section entitled "ALLOWANCES", if required.
- E. Substitution Request Form: This document is to be used for a Contractor to propose substitutions. The forms are filled out by each Prime Contractor and sent to the Architect/Engineer in accordance with. Division 1, section entitled "SUBMITTAL PROCEDURES" and "PRODUCT REQUIREMENTS".
- F. Submittal Cover: This document is to be used for submittal submissions. The forms are filled out by each Prime Contractor and sent to the Architect/Engineer in accordance with. Division 1, section entitled "SUBMITTAL PROCEDURES"
- G. Information Bulletin: The Architect/Engineer shall issue this document for 3 actions.
 - 1. PROPOSAL REQUEST: A quotations for changes in the Contract Sum and / or proposed modifications to the Contract Documents
 - 2. SUPPLEMENTAL INSTRUCTIONS: Instructions for changes to the Contract Documents without additional cost or time
 - 3. CONSTRUCTION CHANGE DIRECTIVE: A directive to immediately proceed with changes to the work of the contract and to submit final cost for inclusion into a Change Order
 - a.

END OF SECTION

CPL

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FRONT END SUBMISSION LOG

CPL PROJECT # 13940.20 - NECSD PHASE 5: 2019 CAPITAL IMPROVEMENTS PROJECT

Contractor Name:							
SUBMISSIONS							
Submission	Date Submitted Approved		Remarks				
Contract:							
Schedule of Values:							
Bonds:							
Insurance:							
Workers Compensation:							
Automobile Insurance:							
Safety Program:							
Schedule:							
Submittal Schedule:							
Emergency Contact:							
Substitution List:							
Subcontractor List:							
Project Manager:							
Superintendent:							

This log is to be used by the contractor to monitor and complete the required front-end submissions.



Clark Patterson Lee

ARCHITECTURE | ENGINEERING | PLANNING

REQUEST FOR INFORMATION

RFI #: Date:

CPL Project # 13940.20 - NECSD Phase 5: 2019 Capital Improvements Project

Contractor Name:							
То:	Firm:						
From:	rom:						
WE	REQUEST YOUR ATTENTION (OR CONFIRMATI	ION) REGARDING THE FOLLOWING:					
Subject:							
Location:							
	Information is Requested By:						
MESSAGI	E:						
Contractor	s Name:						
Bv		Date:					

50 Front Street Newburgh, NY 12550 CPLteam.com 800.274.9000 TEL 845.567.9614 FAX

_

SUBCONTRACTOR LIST

CPL Project # 13940.20 - NECSD Phase 5: 2019 Capital Improvements Project

To:	CPL 50 Front Street, Suite 202 Newburgh New York 12550	From: (Contractor)	
Contra No.:	actors		
Contra	act For:		

List Subcontractors proposed for use on this Project as required by the Construction Documents. Attach supplemental sheets if necessary.

Section No.:		Section Title:	
Firm			Contact
Address:			Contact
Section			
No.:		Section Title:	
Firm			Contract
Address			
Section			
No.:		Section Title:	
Firm			Contract'
Address:			
Section			
No.:		Section Title:	
Firm Name:			Contact'
Address:			Contact.
Section			
No.:		Section Title:	
□ Attachmen	nt(s)		
Signed by:			Date:
Copies: □ □	Owner	Consultants	□ File



ALLOWANCE DISBURSEMENT AUTHORIZATION

Owner	
Architect/Engineer	
Contractor	
Field	
Other	
Other	

CPL PROJECT # 13940.20 - NECSD PHASE 5: 2019 CAPITAL IMPROVEMENTS PROJECT

Allowance Disbursement No.	Initiation Date:
Contract For:	
To Contractor:	
Contract Date:	

Not valid until signed by Owner, Architect/Engineer, Construction Manager, and Contractor.

The Original Contract Allowance

Net Allowance Disbursements previously authorized

Charges to Contract Allowance as a result of this authorization

Current Contract Allowance Balance including this authorization

Owner:

Architect/Engineer:	
(Clark Patterson Lee)	

Contractor:

50 Front Street Newburgh, NY 12550 CPLteam.com 800.274.9000 TEL 845.567.9614 FAX



SUBSTITUTION REQUEST FORM

CPL PROJECT # 13940.20 - NECSD PHASE 5: 2019 CAPITAL IMPROVEMENTS PROJECT

To: Clark Patterson I	From: (Contracto	r)		
50 Front Street, Suite 202 Newburgh, NY 12550				
Re:		Substitution	Request Number:	
Contract For:				
Specification Title:	De	escription:		
Section Number:	Page: Par	rt/Paragraph:		
Proposed Substitution:				
Manufacturer:	Address:		Phone:	
Trade Name:			Model No.:	
Installer: History: New product	Address:	yrs old 🗌 More	Phone: than 10 years old	
Differences between proposed substitu	ution and specified product:			
Point-by-point comparative data a	attached			
Reason for not providing specified ite	m:			
Similar Installation:				
Project:	Arch	itect/Engineer:		
Contractor:	Own	er:		
	Date	Installed:		
Proposed substitution affects other par	rts of Work: No	lain		
Savings to Owner for accepting su Proposed substitution changes Contrac Yes; explain	bstitution: ct Time: No Yes	[Add] [Deduct]	<u>(</u> \$) days
Supporting Data Attached: Drav	vings Product Data	Samples Tests	Reports	

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted By:					
Signed By:					
Firm:					
Address					
Phone:					
Attachments:					
REVIEW AND	ACTION				
S	ubstitution approve	d - Make submittals i	n accordance wit	h Specification Section	on 01330.
	ubstitution approve	d as noted - Make su	bmittals in accord	dance with Specificat	ion Section 01330.
	ubstitution rejected	- Use specified mate	rials.		
	ubstitution Request	received too late - U	se specified mate	erials.	
Signed By:				Dat	e:
Additional					
Comments:	Contractor	Subcontractor	Supplier	Manufacturer	Architect/Engineer

P	S	SUBMITTAL (Attach to each su # Submittal No. Contr	actor only	k Patterson Lee
Contractor: Address:			Architect Proje Contractors Nu Project Name: Newburgh En	ect Number: <u>13940.20</u> Imber: larged CSD
Phone / Fax:	()	()	Phase 5: 2019 Date returned:	Capital Improvements
Type OF SUBMITTA (Check one) Product Data Shop Drawings	L Color Selection Sample	O&M Manual	DATE OF SUBM Resubmitted	IITTAL:
Other <u>Substitution</u> See General Conditions	YES		NUMBER OF A	ГТАСНЕD:
PRODUCT IDENTIFIC Specification Section Contract Dwg. No.: Product Name: Part/Paragraph: Detail Reference: Manufacturer:	XATION I No.:		CONTRACTOR Identify that thi and approved b ance with the C By:	APPROVAL is submittal has been reviewed by the Contractor in accord- deneral Conditions Date:
Deviation from Contra	ct Documents:			
Contractor Comments				
FOR USE BY CPL	SHOP DRA	AWING	Architect's Comments:	
No Exception Furnish as Cor	Taken Revi rected Reje made on the shop drawings	se & Resubmit cted during this review do not		
relieve the Contractor from specifications. This cheer design concept of the proj the contract documents. ' lating all quantities and di of construction; coordinate his work in a safe satisfact	n compliance with the require k is only for review of gene ect and general compliance wi The Contractor is responsible imensions; selecting fabricatio ing his work with that of all o tory manner.	ements of the drawings and eral conformance with the ith the information given in for: confirming and corre- on processes and techniques ther trades; and performing	RECEIVED STAMP	50 Front Street Newburgh, NY 12550 CPLteam.com 800.274.9000 TEL
CPL Date: Bv:				845.507.9614 FAX
Dute Dy.				



Clark Patterson Lee

INFORMATION BULLETIN

DATE:	INFORMATION BULLETIN NO .:			
OWNER:Newburgh Enlarged CSDARCHITECT'S PROJECT NO.:13940.20				
CONTRACTOR: CONTRACT NO.:				
CONTRACT DATE:				

ATTACHMENT(S):

$A\,C\,T\,I\,O\,N$

- 1. *PROPOSAL REQUEST:* Submit an itemized quotation for changes in the Contract Sum and/or time required to implement the above proposed modifications to the Contract Documents. This is not authorization to proceed with the work.
- 2. *SUPPLEMENTAL INSTRUCTIONS:* Implement the above instructions without change to the Contract Sum and/or Time. Prior to proceeding, indicate acceptance below and return one copy to the Architect.
 - 3. CONSTRUCTION CHANGE DIRECTIVE: Proceed with the above described changes to the Contract Documents immediately. Submit final costs and/or change in Contract Time for inclusion in a subsequent Change Order.

	Methods:	Lump Sum	Unit Price		Time & Material Not-to-Exceed
	Change in Contract Sum of				
	Change in Contract Time of				days
	ISSUED:		ACCEPTED:		AUTHORIZED:
BY:		BY:		BY:	
	Architect Date Required for Actions 1,2,3		Owner Date Required for Action 3		ContractorDateRequired for Actions 2,3
Owner Contractor	Architect		Structural		Civil Other (Roofing)

Phase 5: 2019 Capital Improvement Project

13740.20

A232 GENERAL CONDITIONS COVER (CMA)

007200 - 1

SECTION 007200 A232 GENERAL CONDITIONS COVER (CMA)

SUMMARY

1.01 THE FOLLOWING ARE THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER – ADVISOR EDITION". AIA DOCUMENT A232-2019, IS BOUND WITH THIS SECTION. AIA DOCUMENT A232-2019 SETS FORTH THE RIGHTS, RESPONSIBILITIES, AND RELATIONSHIPS OF THE OWNER, CONTRACTOR, ARCHITECT AND CONSTRUCTION MANAGER.

Α.

END OF SECTION

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DRAFT AIA Document A232 - 2019

General Conditions of the Contract for Construction,

Construction Manager as Adviser Edition

for the following PROJECT:

(Name, and location or address)

Newburgh Enlarged City School District Phase 53: 2019 Capital Improvements Project Heritage Middle Vails Gate Elementary School SED #44-16-00-01-0-0-039-011018-009« CPL CLT DRAFT» CPL TEMPLATE

THE CONSTRUCTION MANAGER:

(Name, legal status, and address)

The Palombo Group Inc. 22 Noxon St. Poughkeepsie, NY 12601 « »« »

THE OWNER:

(Name, legal status, and address)

Newburgh Enlarged City School District 124 Grand St. Newburgh, Ny 12550 « »« »

THE ARCHITECT: (Name, legal status, and address)

CPL Architects, Engineers, Landscape Architect and Surveyor, D.P.C. d/b/a CPL **50 Front Street** Newburgh, NY 12550 « »« »

The purpose of the "redline" revisions in this document are to amend, supplement and/or void portions of the AIA standard form document. Strikethrough shall indicate deletion and severing of language from the AIA standard form document, and underline shall indicate addition to the AIA standard form document. The final contract which will be prepared from this "redline" form may finalize the document to effect such revisions without showing "redline".

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

This document is intended to be used in conjunction with AIA Documents A132TM-2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132 \overline{M} -2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132[™]-2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.



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- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE 11A BONDSAND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES





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. Project Labor Agreement), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A "Modification" is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of addenda relating to bidding or proposal requirements.

§ 1.1.2 The "Contract". The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification in a written instrument signed by Owner, or Architect in the case of a written order for a minor change in the Work. 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 the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties. No obligation of the Construction Manager and/or Architect to the Owner, whether expressed by agreement or implied by law, shall be construed as intended for the benefit of the Contractor. Nothing in the Contract Documents nor in any aspect of the Construction Manager and/or Architect's relationship with the Owner shall create or give rise to any duty whatsoever on the part of the Construction Manager and/or Architect to the Contractor. The term " Contractor" in this paragraph shall include the Contractor, its officers, employees, agents, contractees and Subcontractors of any tier.

§ 1.1.3 The <u>"Work"</u>. 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. The Work included is general and in no way limits or qualifies the Contract requirements.

§ 1.1.4 The <u>"Project"</u>. 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 other <u>"Multiple Prime</u> Contractors", and by the Owner's own forces <u>including persons or entities under separate contracts not administered by the</u> <u>Construction Manager.and Separate Contractors</u>.

§ 1.1.5 Contractors. Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager.

§ 1.1.6 Separate Contractors. Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

§ 1.1.7 The <u>"Drawings"</u>. 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.

§ 1.1.8 The <u>"</u>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.

The Specifications may describe (or the Drawings may show) the general placement required of materials or equipment, but the actual required placement may vary depending on the specific material or equipment used by the

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Contractor or the existing field conditions. The Contractor shall bear all direct and indirect costs associated with such variations.

Some Specifications may be written in a condensed outline form and omitted words shall be included by interference. If the Specifications identify a task, it shall mean the "Contractor shall furnish, install and complete" the identified task unless otherwise stated.

Reference to standard specifications, manuals or codes shall mean reference to the latest standard specification, manual or code in effect at the time of the execution of the Owner-Contractor Agreement, unless otherwise stated. When reference is made to a manufacturer, trade association, reference standard or similar source (such as ASTM, ASA, AISC, ACI, etc.) the standards or requirements of such entity shall be incorporated into the Specifications and have the force and effect as though they were set forth expressly. Upon entering into the Owner-Contractor Agreement, the Contactor acknowledges its familiarity with those references, codes, etc. The date of the referenced standard shall be the latest edition in effect at the time of the execution of the Owner-Contractor Agreement unless otherwise stated.

§ 1.1.9 <u>"Instruments of Service"</u>. 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.

§ 1.1.10 <u>"Project Manual"</u>. The Project Manual is the volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications. <u>Initial Decision Maker</u>. The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.1.11 Approved. When the words "approved," "satisfactory," "proper," or "as directed" are used, acceptance by the Architect shall be understood.

§ 1.1.12 Provide. When the term "provide" (including derivatives thereof) is used. It shall mean to properly fabricate, complete, transport, deliver, install, erect, construct, test and furnish all labor, materials, equipment, apparatus, appurtenances, and all items and expenses necessary to properly complete in place ready for operation or use under the terms of the Specifications.

§ 1.1.13 Addenda. Addenda are changes to the Contract Documents in written or graphic form issued by Architect with Owner's approval prior to the execution of the Agreement and specifically listed in the Agreement. Addenda interpret the bid documents, including the Drawings and Specifications, by additions, deletions, clarification, corrections, or supplementary information.

§ 1.1.14 Bulletins. Bulletins are written or graphic instruments issued by the Architect after the execution of the Contract which request a proposal from the Contractor that, if accepted by the Owner, will cause the execution of a Change Order to modify the Contract Documents.

§ 1.1.15 Knowledge. The terms "Knowledge," "Recognize" and "Discover", and their respective derivatives and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows or should know, recognizes or should recognize and discovers or should discover in exercising the care, skill, and diligence required by the Contract Documents. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a contractor familiar with the Project and exercising the care, skill and diligence required of the Contractor by the Contract Documents.

§ 1.1.16 Furnish. "Furnish" shall mean purchase and/or fabricate and deliver to the job site or other location when so designated.

§ 1.1.17 Install. "Install" shall mean build-in, mount in position, connect or apply the specified object(s) and, where applicable, adjust and start-in operation.

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§ 1.1.18 Contractor. Where the word "Contractor" is used in the Contract Documents, it refers to all Prime Contractors.

§ 1.1.19 Alternate. "Alternate" means a variation in the Contract requirements on which a separate price is to be received by the Owner as part of the bid. If the Alternate is accepted in writing by the Owner, the variation is then a part of the Contract and the amount of money quoted to be added to or deleted from the Base Bid is taken into account in determining the Contract Sum.

§ 1.1.20 Owner's Representative. The term "Owner's Representative" means the Owner's employee, the Director of Management Efficiency/Capital Projects Administrator, designated by the Owner to oversee the Project on behalf of the Owner.

§ 1.1.21 Construction Manager. The term "Construction Manager" refers to any firm, entity or individual (or any successor firm, entity or individual) retainer by the Owner to manage the Project on behalf of the Owner.

§ 1.1.22 Project Labor Agreement. "Project Labor Agreement" refers to a pre-hire collective bargaining agreement between a Contractor and a building and construction trade labor organization establishing the labor organization as the collective bargaining representative for all person who will perform work on a public works project, and which provides that only contractors and subcontractors who provide a signed Letter of Assent agreeing to be bound by the Project Labor Agreement.

§ 1.1.23 Nothing in the Contract Documents shall relieve Contractor from its requirement to comply with all applicable statutory requirements and other governmental or quasi-governmental codes, rules and regulations, including, without limitation, those contained in New York State Education Law §3813.

§ 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. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. Items not expressly included in the Contract Documents, but which are reasonably inferable therefrom as being necessary to produce the intended results shall be deemed included in the Work. The Contract Documents are complimentary, 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 intended results. Contractor acknowledges and agrees that the Contract Documents are adequate and sufficient to provide for the completion of the Work, and include all Work, whether or not shown or described, which may be inferred to be required or useful for the completion of the Work in accordance with all applicable federal, state, and local statutes, laws, codes, rules, regulations, requirements, and lawful orders of public authorities in effect during the term of the Contract and applicable to the Work. Without limitation, the Work includes all labor, materials, equipment and services necessary to satisfy all governmental conditions including but not limited to obtaining permits. Unless otherwise set forth herein, in the event that there is a conflict, discrepancy, ambiguity, and/or unclear circumstances between or among any terms, conditions, or requirements of the Contract Documents, those that provide for the most inclusive, highest quality, highest quantity, highest cost, and/or most stringent requirements and/or obligations on the part of the Contractor in accordance with the Architect's interpretation shall apply and be provided or performed by Contractor at no extra compensation to Contractor and/or no extension of the Contract Time. The Contractor herewith agrees that no extra compensation shall be awarded to him, since he herewith received specific instructions as to the procedure and values of the WorkIn the event of inconsistencies within or between parts of the Contract Documents, the Contractor shall (1) provide a better quality of Work or (2) comply with the more stringent requirements; either or both in accordance with the Architect's interpretation. The terms and conditions of the Subparagraph 1.2.1, however shall not relieve the Contractor of any of the obligations set forth elsewhere in this Agreement. All work shall conform to the Contract Documents. No significant change there from shall be made without prior written authorization by the Owner. Where only part of the Work is indicated, similar parts shall be considered repetition. When any detail is shown and the components therefore are fully described, similar details shall be construed and not mentioned in the other shall be of like effect as if shown or mentioned in both. Should the Specifications and

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Drawings fail to particularly describe a product or material shown to be used in any place, the Contractor shall furnish the product that would normally be used in that place.

§ 1.2.1.2 Whenever any additional materials and/or workmanship not shown or specified are required to complete the Work of the Contract Documents in accordance with the intent thereof, the Contractor shall provide these materials and workmanship at no additional cost to the Owner.

§ 1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has carefully examined the Contract Documents (including the Project Labor Agreement), and the site, and represents that the Contractor is thoroughly familiar with the nature and location of the Work, the site and all improvements thereon, the specific conditions under which the Work is to be performed, and all matters which may in any way affect the Work or its performance. The Contractor further represents that as a result of such examinations and investigations, the Contractor thoroughly understands the Contract Documents and their intent and purpose, and is familiar with all applicable codes, ordinances, laws, regulations, and rules as they apply to the Work, and that the Contractor will abide by same. Claims for additional time or additional compensation as a result of the Contractor's failure to follow the foregoing procedure and to familiarize itself with all local conditions and the Contract Documents will not be permitted. The Contractor shall also review accessibility and general character of the site or building(s), the extent of existing work within or adjacent to the site, and any other work being performed thereon at the time of submission of his bid § 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2.1 The Specifications may be generally divided into trade sections, and, if so, it is for the purpose of convenience and ready reference only. 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. The Contractor will be permitted to allot the work of Subcontractors at his own discretion regardless of the groupings in the Specifications. It shall be the Contractor's responsibility to settle definitely with each Subcontractor the portions of the Work which each will be required to perform and the Owner (including the Owner's Representative), Construction Manager and Architect assume no responsibility whatsoever for any jurisdiction claimed by any of the trades/Subcontractors involved in the Work. The Contractor shall, subject to the other terms of the Contract Documents, provide each item listed, of quality noted and subject to qualifications noted, and shall perform operations prescribed according to the conditions stated, furnishing therefore all necessary labor, materials, equipment and incidentals required to complete the Work. Contractor represents that the Subcontractors, manufacturers and suppliers engaged or to be engaged by it are and will be familiar with the requirements for performance by them of their obligations.

§ 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. <u>mechanical</u> and electrical systems, or to complete otherwise incomplete construction or to meet governing code requirements, they shall be included by the Contractor, unless he sought and received contradictory interpretation or clarification from the Architect.

§ 1.2.4 The Contractor shall provide all labor, materials, equipment, appliances and services necessary to execute and complete all work as required by the Contract Documents and the applicable Building Codes. Contractors shall conduct pre-construction surveys and provide photo/videos of any existing damage in areas where new construction is to take place prior to the start of work.

§ 1.2.4.1 The Contractor and each Subcontractor shall evaluate and satisfy themselves with the conditions at the site and limitations under which the Work is to be performed including, without limitation, (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials, tools and equipment, (5) any time restrictions for accessing or working at the site, (6) the storage, handling and trucking of materials to be used on-site, and (7) all other matters as may be incidental to the work under the Contract, before and after delivery of the bid proposal.

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§ 1.2.4.2 The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this Paragraph 1.2.

§ 1.2.4.3 Contractor represents and warrants that its investigation of the site was performed in detail and was sufficient to disclose the condition of the Project Site and all improvements thereon, and the conditions under which the Work is to be performed, including, without limitation (i) the location, condition, layout and nature of the Project Site and surrounding areas; (ii) anticipated labor supply costs; (iii) availability and cost of materials, tools, and equipment; and (iv) other similar issues pertinent to the performance of the Work.

§ 1.2.4.4 The Contractor shall be responsible to remove and/or relocate all items which interfere with the new construction and shall correct all visible code violations at no additional cost to the Owner. Such violations shall include, but not be limited to, electrical panel wires, firestopping at fire-rated partitions.

§ 1.2.5 If the Contract Documents are not in concurrence regarding the quantity or quality of products, the Contractor shall request interpretation from the Architect. The Architect's interpretations shall be based on the following criteria:

- .1 Specifications shall determine quality.
- .2 Drawings shall determine quantity.
- .3 Large scale details shall govern over smaller scale details.

§ 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.

§ 1.4.1 The Contractor represents that prior to execution of the Contract, it has consulted with an attorney, that the attorney has reviewed all of the Contract Documents and that the Contractor has signed the Contract Documents only after such consultation with its attorney. Accordingly, the maxim that this Contract shall be construed against the Party who drafted it shall not apply to the interpretation of this Contract or any of the Contract Documents.

§ 1.4.2 Severability. In the event that any term or provision, or part thereof, of this Contract or any of the Contract Documents is held to be illegal, invalid or unenforceable under applicable law by a court of competent jurisdiction, such term or provision, or part thereof, shall be deemed ineffective to the extent of such invalidity or unenforceability only and severed from the Contract Documents and the remaining term(s) and provision(s) shall remain unaffected thereby.

§ 1.4.3 Captions. Titles or captions of Articles, Sections, and Exhibits contained in the Contract Documents are inserted only as a matter of convenience and for reference, and in no way define, limit, extend or describe the scope of the Contract Documents or the intent of any provision hereof.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

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

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely

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

§ 1.5.3 Notwithstanding the preceding sections 1.5.1 and 1.5.2, nothing contained this this Section 1.5 or elsewhere in the Contract Documents shall modify the rights granted to Owner by Architect in relation to the Instruments of Service as set forth in the separate agreement between Owner and Architect.

§ 1.6 References to trade publications, industries, and published standards shall carry the latest date, including latest revisions, unless dated to the contrary. Further, all work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others. All work shall conform to the National Electric Code, the National Board of Fire Underwriters and applicable City and State Building Codes and Authorities having jurisdiction.

§ 1.7 The Contractor and all Subcontractors shall refer to all of the Drawings, including those showing primarily the work of the plumbing, heating, ventilation, air conditioning, electrical, and other specialized trades, and to all of the sections of the Specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results.

§ 1.8 All indications or notations on the drawings which apply to one of a number of similar situations, materials, or processes shall be deemed to apply to all such situations, materials, or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents.

§ 1.9 The general character of the detailed work is shown on the drawings, but minor modifications may be made on the full size drawings. Any details shall be worked out in relation to their location and their connection to other parts of the work. Where details or conditions are indicated in summary form, such details or conditions shall be continued throughout the course or parts in which they occur. The Contractor shall be responsible for the complete and correct application of such details throughout the portions of the project in which they occur.

§ 1.10 Should the Architect's written interpretations, in the opinion of the contractor, show additional work, or work of more expensive character than that shown or inferred by the Contract Drawings, it shall be the duty of the Contractor to so notify the Architect through the Construction Manager within five (5) days from receipt of same in order that proper adjustment may be made if found justifiable in the opinion of the Architect and the Owner. The Contractor shall assume full responsibility for all such work done without the approval of the Architect, the Construction Manager, and the Owner.

§ 1.11 Confidentiality

§ 1.11.1 The Contractor warrants and represents that the Contractor shall not knowingly or negligently communicate or disclose at any time to any person or entity any information in connection with the Work or the Project, except: (1) with prior written consent of the Owner, (2) information that was in the public domain prior to the date of this Agreement, (3) information which becomes part of the public domain by publication or otherwise not due to any unauthorized act or omission of the Contractor, (4) as may be required to perform the Work or by any applicable law, or (5) for purposes of coordination with other prime contractors.

§ 1.11.2 The Contractor, any time upon request of the Owner, shall immediately return and surrender to the Owner all copies of any materials, records, notices, memoranda, recordings, drawings, specifications, and mock-ups and any other documents furnished by the Owner of the Architect to the Contractor.

§ 1.11.3 The Contractor shall specifically cause all Subcontractors or any other person or entity performing any services or furnishing any materials or equipment of the Work to warrant and represent all items set forth in this Paragraph 1.6.

§ 1.11.4 The representations and warranties contained in this Paragraph 1.11 shall survive the complete performance of the Work or earlier termination of this Agreement.

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§ 1.12 Project Labor Agreement

§ 1.12.1 THIS PROJECT IS SUBJECT TO A PROJECT LABOR AGREEMENT COVERING CONSTRUCTION OF CONSTRUCTION PROJECTS, NEWBURGH ENLARGED CITY SCHOOL DISTRICT EFFECTIVE FEBRUARY 1, 2021, BETWEEN NEWBURGH ENLARGED CITY SCHOOL DISTRICT, THE HUDSON VALLEY BUILDING AND CONSTRUCTION TRADES COUNCIL ON BEHALF OF ITSELF AND ITS AFFILIATED LOCAL UNIONS, AND SIGNATORY LOCAL UNIONS ON BEHALF OF THEMSELVES AND THEIR MEMBERS ("PLA"), WHICH IS ATTACHED TO THESE GENERAL CONDITIONS AS APPENDIX "A ", THE PROVISIONS OF WHICH MAY BE SPECIFICALLY INCLUDED HEREIN AS WELL AS INCORPORATED BY REFERENCE WITHIN THESE GENERAL CONDITIONS AS FULLY AS IF SET FORTH AT LENGTH HEREIN... TO THE EXTENT OF ANY CONFLICT BETWEEN THE GENERAL/SPECIAL CONDITIONS AND THE PLA, THE PROVISIONS IN THE PLA WILL CONTROL. NOTWITHSTANDING SPECIFIC REFERENCES TO CERTAIN PROVISIONS THE PLA IN THESE GENERAL CONDITIONS, THE CONTRACTORS AND SUBCONTRACTORS OF ALL TIERS MUST COMPLY WITH ALL PROVISIONS OF THE PLA.

ALL SUCCESSFUL BIDDERS AND THEIR SUBCONTRACTORS OF WHATEVER TIER MUST BECOME BOUND BY, AND SIGNATORIES TO, THE PLA BY SIGNING A LETTER OF ASSENT. THE LETTER OF ASSENT REQUIRED OF CONTRACTORS AND SUBCONTRACTORS IS SET FORTH AS SCHEDULE B TO THE PLA.

§ 1.136 Notice

§ 1.136.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

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

§ 1.7 Digital Data Use and Transmission

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

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203TM 2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202TM 2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. <u>The Newburgh Enlarged City School District is the Owner and the Board of Education of the Newburgh Enlarged City School District shall be the only entity with authority to bind the Owner or provide approval or authorization on behalf of the Owner as required by law and/or the policies and procedures of the Newburgh Enlarged City School District unless Contractor is notified otherwise in writing signed by the Owner. 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 herein or in Section 4.2.1<u>Article 4</u>, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative. With respect to any Claim by Contractor, including without limitation any Claim for a Change Order or any Claim for an extension of the Contract Time or upward adjustment of the Contract Sum, any rejection of such Claim, either in whole or in part, made by</u>

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Construction Manager or the Architect to Contractor shall be deemed to have been made by the Owner unless the Owner's decision to the contrary is set forth in writing.

§ 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 Evidence of the Owner's Financial Arrangements

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

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

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

§ 2.2.34 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.32 Information and Services Required of the Owner

§ 2.32.1 With the exception of the building permit, all permits and fees, approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities are the responsibility of the Contractor under the Contract Documents. Contractor's price shall include all fees and other costs for securing and maintaining (by Contractor its Subcontractors) for the life of the Project: all permits, PE licenses, connection fees, inspections, etc., applicable to, or customarily secured for the Work. This provision includes any permits to be issued in the name of the Contractor as required for the Work. The Contractor shall furnish Construction Manager and Architect or Owner with original copies of all permits prior to 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. Unless otherwise provided under the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit.

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

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§ 2.3.3 The Owner shall retain a construction manager adviser lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.4 If the employment of the Construction Manager or Architect terminates, the Owner shall employ a successor construction manager or architect to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 2.3-52.2 If reasonably requested by the Contractor in writing, the Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.23.63 Following receipt of a written request therefore from the Contractor, tThe 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 reasonable written request for such information or services.

§ 2.32.74 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor twoone copyies of the Contract Documents for purposes of making reproductions pursuant to Section 4.5.2. Any and all additional copies will be furnished to Contractor at its own expense (including the cost of reproducing, postage and handling).

§ 2.3.8 The Owner shall forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.

§ 2.34 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, or fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, materials, or equipment so as to permit the Owner to reasonably infer that the Contractor will not be able to complete the Work within the Contract Time or fails to remove, bond or discharge (within thirty (30) days after actual notice or notice pursuant hereto from the Owner or the Construction Manager) any lien filed upon or against Owner's property or against the Project funds by anyone claiming by, though, or under Contractor, or disregards the instructions of Construction Manager, Architect or Owner when such instructions are based upon the requirements of 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 to the Owner's satisfaction in its discretion; 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 its benefit or the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.45 Owner's Right to Carry Out the Work

§ 2.5.1 If the Contractor defaults or neglects to carry out the Work in accordance with or is otherwise in default of any term of the Contract Documents and fails within a three (3)en-day period after receipt delivery of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness (to the reasonable satisfaction of Owner), the Owner may at the end of such three (3)-day period with no further notice required, without prejudice to other remedies the Owner may have, correct such default or neglectdeficiencies. 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 Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect or failure, and also including, without limitation, the Owner's reasonable attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder), and all other reasonable expenses relating thereto. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. Such Change Order shall be deemed to have been executed by the Contractor, whether or not actually signed by the Contractor. The right of the Owner to stop and carry out the Work (or any portions thereof) pursuant to this paragraph shall not give rise to any duty on the part of the Owner to

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exercise this right for its benefit or the benefit of the Contractor or any other person or entity.

Such action by the Owner and amounts charged to the Contractor are both subject to review by the Construction Manager and prior approval of the Architect, and the Construction Manager or Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

§ 2.5 Owner's Right to Audit. Contractor shall keep full and accurate records of all costs incurred and items billed in connection with the performance of the Work, which records shall be open to audit by the Owner or its authorized representatives during performance of the Work and until six (6) years after Final Payment. In addition, the Contractor shall make it a condition of all subcontracts relating to the Work that any and all Subcontractors will keep accurate records of costs incurred and items billed in connection with their work and that such records shall be open to audit by the Owner or its authorized representatives during performance of the Work their work and that such records shall be open to audit by the Owner or its authorized representatives during performance of the Work and until six (6) years after its completion.

§ 2.6 Owner's rights stated in this Article 2 are cumulative and not in limitation of any rights of the Owner granted elsewhere in the Contract Documents, or at law or in equity. Further, it is expressly understood that notwithstanding any of the rights and authority granted the Owner in this Article 2 or elsewhere in the Contract Documents, in no event shall the Owner, Construction Manager or Architect have control over, charge of, or any responsibility for construction means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work. **§ 2.5.2** The rights stated in this Article 2 and elsewhere in the Contract Documents are cumulative and not in limitation of any rights of the Owner or Contractor (1) granted in the Contract Documents; (2) law; or (3) in equity.

§ 2.5.3 In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences, or procedures or for safety precautions and programs in connection with the Work. The Owner assumes no responsibility for liability for the safety of the Project site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work; provided that the Owner shall be responsible for, and the Contractor shall upon discovery notify the Owner of, any unsafe condition created by the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 General

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

§ 3.1.2 The plural term "Multiple Prime Contractors" refers to persons or entities who perform construction under contracts with the Owner that are administered by the Construction Manager. The term does not include the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 3.1.<u>3</u>² The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.43 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their 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 Submission of its bid to the Owner and subsequent execution of the Contract by the Contractor is a representation that the Contractor has carefully examined the Contract Documents and has visited and has performed a detailed investigation of the site, become thoroughly familiar with the nature and local conditions under which the Work is to be performed (including but not limited to its condition, layout, nature, surrounding areas, climatic

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The Contractor shall rely on its own knowledge and its review and interpretation of the Contract Documents and data provided in entering into the Contract and not the representations of the Owner or other persons. The Contractor acknowledges that quantities provided in the Contract Documents are estimates only and Contractor shall not seek additional compensation or adjustment in price based on a variation in actual quantities.

Prior to execution of the Contract, the Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project site and surrounding areas, (ii) generally prevailing climatic conditions, (iii) anticipated labor supply and costs, and (iv) availability and cost of materials, tools, and equipment.

<u>The location of existing features shown on plans is intended for general information only.</u> The Contractor, alone, is responsible for accurate determination of the location of all structures and shall not be entitled to any extra payment for discrepancies between the work as shown in the Contract Documents and existing conditions.

The locations, depths and data as to underground conditions have been obtained from records, surface indications and data furnished by others. Information furnished is solely for the convenience of the Contractor without any warranty, expressed or implied as to its accuracy or completeness. The Contractor shall verify all existing conditions prior to commencing the Work. The Contractor shall make no claim against the Owner or Architect with respect to the accuracy or completeness of such information if the conditions found after commencement of the Work are different from those as indicated.

The Contractor shall be solely responsible for the conditions which develop during construction and in the event any structure is dislocated, or over strained, or damaged so as to affect its usefulness, the Contractor shall correct or repair any dislocations, over strains or damages caused.

The Contractor is responsible for restorations and/or repair of utilities, private property, buildings, pavement, walkways, roads, etc. damaged by its activities during the performance of its Work.

§ 3.2.1.1 The Contractor is deemed to be a qualified expert in the systems and construction requirements of the Work of its Contract. The Contractor hereby specifically acknowledges and declares that the Contract Documents are full and complete, are sufficient to have enabled it to determine the cost of the Work and that the Drawings, the Specifications and the Addenda are sufficient to enable the Contractor to construct the Work outlined therein in accordance with all federal, state and local statutes, laws, codes, ordinances, regulations, rules, and lawful orders of public authorities as they apply to the Work, and otherwise to fulfill all of its obligations under the Contract Documents. In addition, if the Contractor performs any construction activity while it knows or should have known that any of the Contract Documents contains an error, inconsistency or omission, the Contractor shall be responsible for such performance and shall bear the costs for correction thereof.

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§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before ordering any materials and before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner-pursuant to Section 2.3.5, 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 and otherwise verify all field conditions. Contractor shall be responsible for the correctness of all measurements. Contractor shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors or, -omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to, or that should have been discovered by the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require before commencing activities. . 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. Any errors due to the Contractor's failure to so verify all such grades, elevations, locations or dimensions shall be promptly rectified by the Contractor without any additional cost to the Owner.

§ 3.2.2.1 The accuracy of grades, elevations, dimensions, or locations of existing conditions is not guaranteed by the Construction Manager, Architect or Owner, and the Contractor is responsible for verifying same. No extra charges or compensation or extension of the Contract Time will be allowed on account of differences between actual dimensions and the dimensions indicated on any Drawings or elsewhere in any Contract Documents. Any difference that may be found shall be submitted to the Construction Manager and Architect for resolution before proceeding with the Work.

§ 3.2.2.2 If a minor change in the Work is found necessary due to actual field conditions, the Contractor shall submit through the Construction Manager detailed drawings of such departure for the approval of the Architect before making the change.

§ 3.2.2.3 In case of omissions or discrepancies between the Contract Documents, the Contractor shall secure instructions from the Architect through the Construction Manager before proceeding with the Work affected by omissions or discrepancies. The Contractor shall assume full responsibility and cost for proceeding with such Work without approval.

§ 3.2.2.4 During the course of Work, should any errors, omissions, ambiguities, discrepancies of conflicts be found on the Drawings or in the Specifications to which the Contractor has failed to call attention before submitting its bid, the Architect through the Construction Manager shall interpret the intent of the Drawings and Specifications and the Contractor hereby agrees to abide by the Architect's interpretation and agrees to carry out the Work in accordance with the decisions of the Architect at no additional cost to Owner or compensation for Contractor and with no extension of the Contract Time.

§ 3.2.2.5 Salvageable Materials: All existing materials, equipment, misc. etc. scheduled for demolition are the property of the Owner. If requested, Contractors will remove and store any such items to a location designated by the Owner.

<u>The Contractor shall assume full responsibility for accuracy of measurements obtained at the site.</u> No extra compensation will be allowed because of differences between actual measurements and dimensions indicated on the Drawings, nor for Contractor's failure to coordinate work with actual field measurements.

§ 3.2.3 The Contractor is not required to ascertain that in its review of the Contract Documents as required herein 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 Construction Manager and Architect any nonconformity of the Contract Documents with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that <u>it is entitled under the Contract Documents to either or both of an increase in</u> <u>the Contract Sum or extension of the contract time additional cost or time is involved</u> because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to

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Sections 3.2.2 <u>and its subsections</u> or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 <u>and its subsections</u> or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 The Contractor may submit requests for information to the Architect through the Construction Manager to help facilitate the Contractor's performance of the Contract. Prior to submitting each request for information, the Contractor shall first carefully study and compare the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtainable from such sources.

§ 3.2.6 Each request for information shall be submitted to the Architect through the Construction Manager, in writing, on the form immediately following these Conditions. Each request for information shall identify the specific sources which were reviewed by the Contractor in an effort to determine the information requested, and a statement to the effect that the information being requested could not be determined from such sources.

§ 3.2.7 The Contractor shall submit each request for information sufficiently in advance of the date by which such information is required in order to allow the Architect sufficient time, in the Architect's professional judgment, to permit adequate review and response and to permit Contractor compliance with the latest construction schedule.

§ 3.2.8 The Contractor shall maintain a log at the Project site that sequentially numbers and lists each request for information. This log shall contain the Drawing reference or Specification section to which the request pertains, the date of the request, to whom the request was made, by whom the request was made, the nature of the request, and the Architect's resolution thereof. This log shall be reviewed at each Project meeting and the status of the requests for information shall be made part of the minutes of such meetings.

§ 3.2.9 The Contractor shall reimburse the Owner or accept a charge-back against contract sums due from the Owner for amounts charged to the Owner by the Architect for responding to Contractor requests for information where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, or prior Project correspondence or documentation.

§ 3.3 Supervision and Construction Procedures

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, the Construction Manager, and the Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. The Construction Manager shall review the proposed alternative for sequencing, constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures. Where the Contract Documents refer to particular construction means, methods, techniques, sequences or procedures or indicate or imply that such are to be used in the Work, such reference is intended only to indicate that the operations of the Contractor shall be such as to produce at least the quality of work implied by the operations described, but the actual determination of whether or not the described operations may be safely and suitably employed on the Work shall be the sole responsibility of the Contractor.

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§ 3.3.1.1 The Contractor shall, prior to start of any portion of the Work:

- review any specified construction or installation procedures, including those as may be .1 recommended by the proposed manufacturer(s);
- advise the Architect though the Construction Manager, in writing, if the specified procedure or .2 procedures deviate from good construction practice;
- advise the Architect though the Construction Manager, in writing, if following said procedure or .3 procedures will affect any warranty, including Contractor's general warranty;
- advise the Architect though the Construction Manager, in writing, of any objections the Contractor .4 may have to the specified procedure or procedures;
- propose to the Architect though the Construction Manager, in writing, any alternative procedure or .5 procedures which the Contractor will warrant.

§ 3.3.1.2 All loss, damage, or liability, or cost of correcting defective Work arising from the employment of any construction means, methods, techniques, sequences or procedures shall be borne by the Contractor notwithstanding that such construction means, methods, techniques, sequences or procedures may be referred to, indicated or implied by the Contract Documents; it being understood that in no event shall the Owner, Construction Manager or Architect have control over, charge of, or any responsibility for construction means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work.

§ 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 the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.3.4 The Contractor shall inspect all materials as delivered to the premises and shall reject any materials that will not conform to the Contract Documents when properly installed.

§ 3.3.5 The Contractor shall be responsible for and coordinate any and all inspections required by any governmental body having jurisdiction over the Work or Project. Failure to obtain any permits, licenses or other approvals because of the failure of the Contractor to conform to this requirement shall not extend the Contract Time, and the Contractor shall not be entitled to any increase in the Contract Sum therefore. In addition, any additional costs and/or expenses of any nature incurred by the Owner as a result of the Contractor's failure to conform to this requirement shall constitute a charge against the Contractor's Contract.

§ 3.3.6 Contractor shall perform all Work in accordance with all requirements of all federal, state and local statutes, laws, codes, ordinances, regulations, rules, and lawful orders of public authorities as they apply to the Work.

§ 3.3.7 During periods of active construction, Contactor shall consult daily and cooperate with the Construction Manager, Architect and Owner. On a continuous and daily basis, Contractor shall keep the Construction Manager, Architect and Owner notified of when Work will be starting, restarting, suspended and temporarily or permanently concluding.

§ 3.3.8 Contractor shall attend all meetings, at a minimum on a weekly basis, as required by the Owner and/or the Construction Manager or Architect to be held at a location as may be determined by Construction Manager or Owner. These meetings will be held to arrange for a satisfactory performance of the Work of this Contract and/or the coordination of all Multiple Prime Contractors so as not to impede the progress of the Project. Failure of Contractor to attend said weekly (at a minimum) meetings shall be deemed a material breach of this Contract. Contractor shall be responsible for all delays and/or expenses incurred for failure to attend meetings and any coordination difficulty.

§ 3.3.9 Contractor shall provide copies of its daily construction reports to the Construction Manager or any other individual so identified by Owner for such purpose. Unless otherwise specified, these reports shall be submitted no later than 10:00 am the following workday. The daily reports shall be for Construction Manager's and Owner's

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information and provide detailed information as required by the Construction Manager or Owner concerning the Contractor's activities and operations only. If any type of 'daily construction' form is provided by Construction Manager or Owner for purposes of compliance with this section, such form shall be used by Contractor.

§ 3.3.10 Unless otherwise requested by Construction Manager, or specified elsewhere in the Contract Documents, Contractor shall submit two-week look ahead schedules identifying the anticipated activity and material needs for all of the Work scheduled to be performed by the Contractor and its Subcontractors for the identified time period. The Contractor shall keep this schedule current and provide a bi-weekly report to the Construction Manager and Owner concerning the actual performance and activity compared to the two-week look ahead. If a form is provided by Construction Manager for the purpose of compliance with this section, such form shall be used by Contractor.

§ 3.3.11 In addition to the Owner's right to take Work away (set forth in Section 2.4), if Contractor fails to keep the site safe and clean within four (4) hours of being notified by the Construction Manager or Owner, either verbally or in writing, the Construction Manager or Owner may, at Owner's option, have this Work performed and back charged to Contractor at prevailing overtime rates plus 15%. For purposes of this section, notwithstanding anything contained to the contrary in the Contract Documents, verbal notice to field personnel is deemed notice to the Contractor. Owner's rights pursuant to this paragraph shall not give rise to any duty on the part of the Owner to exercise this right for its benefit or the benefit of the Contractor or any other person or entity.

§ 3.3.12 Contractor shall allow sufficient time to inspect and accept the Work of other Multiple Prime Contractors and Owner's other contractors. Should any discrepancies be discovered, the Contractor shall provide notice to Construction Manager sufficiently in advance so that Construction Manager and Architect may have sufficient time to review same and corrective action can be taken (by all necessary parties) without affecting the progress of any Multiple Prime Contractor or Owner's other contractors or the Work.

§ 3.3.13 Unless otherwise requested by Construction Manager, or specified elsewhere in the Contract Documents, one (1) week after issuance of a Notice to Proceed or commencement of Work, whichever is earlier, Contractor shall provide two (2) copies of a video-taped recording of all existing conditions to the Owner through the Construction Manager. This taping shall provide a record of all relevant existing buildings, grounds, exterior conditions and interior conditions which many be affected by the Work. Contractor shall schedule a representative of both the Owner and the Construction Manager to be present at this taping. In the absence of this record, the Contractor shall be estopped from asserting that any damage to existing conditions/property was to any extent pre-existing when Owner or the Construction Manager asserts that such damage was caused by Contractor.

§ 3.3.14 Contractor must exert due care and diligence when working in or near any existing buildings or site work which is to remain. The absence of protection around such items shall not excuse the Contractor from its responsibility to provide protection. Any damages due to the Contractor's failure to discharge such responsibilities to the existing buildings, site work or facilities shall be repaired by the Contractor at its sole cost and expense and if Contractor cannot repair the same, it shall bear the cost thereof.

§ 3.3.15 All disconnect and/or tie-in Work involving any utilities that would interfere with the ongoing operations of the Owner shall be completed on an after-hours basis. The performance of this Work shall be projected on the required schedules and the Construction Manager, Architect and Owner are to be notified at least forty-eight (48) hours in advance of commencing this Work. All overtime and standby personnel necessary to complete these tie-ins shall be the responsibility of the Contractor.

§ 3.3.16 In the event that Owner makes arrangements to open a building at the request of Contractor and the Contractor does not appear at the designated time and location, the Contractor shall pay the Owner for all costs incurred relating to the opening of said building for Contractor.

§ 3.3.17 Contractor shall provide to Owner and Construction Manager, as either of them may request, copies of all correspondence, memoranda and bulletins to and from the Construction Manager, Architect, Subcontractors, suppliers, public agencies, and others on the Project.

§ 3.3.18 Contractor agrees that it shall not permit any unauthorized persons or entities to visit or enter upon the Project site absent Construction Manager's or Owner's prior approval.

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§ 3.3.19 Contractor shall arrange for reasonable protection to secure the Site against theft and vandalism and arrange for reasonable protection of adjoining property in agreement with Construction Manager.

§ 3.3.20 Contractor shall develop methods of dust and fume control so as to comply with applicable legal requirements.

§ 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. <u>The Contractor shall check all materials and labor entering into the Work site and shall keep full detailed accounts thereof.</u>

§ 3.4.2 Equivalents and Substitutions Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.
 § 3.4.2.1 The materials, products and equipment described in the Contract Documents establish the standard of required quality, function, dimension and appearance expected.

§ 3.4.2.2 Equivalents and Substitutions shall only be permitted as provided in the Contract Documents – SPECIFICATIONS – SUBSTITUTION PROCEDURES (SECTION 012500) and EQUIVALENTS (SECTION 012519). It is expressly agreed that without limitation to all other requirements of the preceding Specification sections and notwithstanding anything to the contrary in the Contract Documents, no equivalents may be proposed by Contractor and no equivalents will be considered by Owner after the time set forth in EQUIVALENTS SECTION 012519 and in no event any later than the time of Contract execution.

§ 3.4.2.3 Notwithstanding the above Section 3.4.2.2 or anything else in the Contract Documents to the contrary:

- (i) The Architect, Construction Manager and Owner's decision of approval or disapproval of a proposed equivalent or substitution shall be made in their sole discretion and shall be final.
 (ii) Should the Construction Manager Architect and Owners of expression and shall be final.
- (ii) Should the Construction Manager, Architect and Owner not approve a proposed substitution, the costs incurred by Owner relating to the review of said substitution shall be deducted from the Contract Sum.
- (iii) The Contractor making a substitution shall bear all costs associated with such substitutions including, but not limited to: (a) redesign required for any of the Work; (b) material or quantity changes for any of the Work; (c) delays in any of the Work; or (d) requests for information generated due to substitutions.
- (iv) The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The Architect shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutes which, in its reasonable opinion, would be out of character or quality of design of the Project.

After the Contract has been executed, the Owner and Architect will consider requests for the substitution of products in place of those specified only if the Contractor satisfies the procedural requirements set forth in the General Requirements (Division 01) of the Specifications. By making requests for substitutions, the Contractor.

- .1 Represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.
- .2 Represents that it will provide the same warranty for the substitution as it would have provided for the product specified;
- .3 Certifies that the cost data presented is complete and includes all related costs for the substituted product ad for Work that must be changed as a result of the substitution, except for the Architect's redesign costs, and waives all claims for additional costs related to the substitution that may subsequently be incurred by the Contractor; and

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<u>A</u> Shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

§ 3.4.2.1 The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for reviewing the Contractor's proposed substitutions and making agreed upon changes in the Drawings and Specifications resulting from such substitutions. The Owner may seek reimbursement pursuant to the procedures set forth in § 9.5.1.

§ 3.4.2.2 The Contractor shall bear all expenses resulting from substitutions including the cost General Conditions as well as any structural, plumbing, mechanical and electrical trade costs made necessary by the substitution.

§ 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. The Contractor acknowledges that it is the Contractor's responsibility to hire all personnel for the proper and diligent prosecution of the Work and the Contractor shall maintain labor peace for the duration of the Project. Should any disorderly, incompetent or objectionable person be hired or employed by the Contractor or be let upon or about the premises of the Owner, for any purpose or in any capacity, he/she shall, upon request of the Construction Manager or Owner, be removed from the Project and not again assigned thereto without written permission of the Construction Manager or Owner. In the event of a labor dispute, the Contractor shall not be entitled to any increase in the Contract Sum or extension of the Contract Time.

§ 3.4.3.1 UNION DISPUTES / LABOR HARMONY (Also refer to Project Labor Agreement annexed hereto and made a part of these Conditions).

§ 3.4.3.1.1 The Contractor shall employ only labor on the Project or in connection with its Work capable of working harmoniously with all trades, crafts and any other individuals associated with the Work to be performed. There shall be no strikes, picketing, work stoppages, slowdowns or other disruptive activity at the Project for any reason by anyone employed or engaged by the Contractor to perform any portion of its Work. There shall be no lockout at the Project by the Contractor. The Contractor shall be responsible for providing the manpower required to proceed with the Work under any circumstance. Should it become necessary to create a separate entrance for a Contractor involved in a labor dispute, all costs associated with creating that entrance shall be borne by the Contractor involved in the dispute. Such costs shall include, but not be limited to, signage, fencing, temporary roads and security personnel as deemed necessary by the Owner for the safety of the occupants of the site.

§ 3.4.3.1.2 If Contractor has engaged the services of workers and/or Subcontractors who are members of trade unions, the Contractor shall make all necessary arrangements to reconcile, without delay, damage or cost to the Owner and without recourse to the Construction Manager, Architect or the Owner, any conflict between its Contract with the Owner and any agreements or regulations of any kind at any time in force among members or councils which regulate or distinguish what activities shall not be included in the Work of any particular trade.

§ 3.4.3.1.3 In case the progress of the Work to be performed by the Contractor is affected by any undue delay in furnishing or installing any items or materials or equipment required pursuant to its agreement with the Owner because of a conflict involving any such labor agreement or regulation, the Owner may require the other material or equipment of equal kind and quality be provided pursuant to a Change Order or Construction Change Directive but in no case shall the amount of such change be charged by the Contractor to the Owner as an additional cost to perform the Work pursuant to its Contract.

§ 3.4.3.1.4 The Contractor shall ensure that its Work continues uninterrupted during the pendency of a labor dispute.

§ 3.4.3.1.5 The Contractor shall be liable to the Owner for all damages suffered by the Owner occurring as a result of work stoppages, slowdowns, disputes or strikes.

§ 3.4.4 A sufficient force of competent workmen, foremen, and superintendents shall be employed at all times to permit the Work to be pursued with diligence until completion.

§ 3.4.5 No materials or supplies for the Work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale or other arrangement by which an interest is retained by the seller. The Contractor warrants that it has good title to all materials and supplies used by it in the Work, or resold to Owner, pursuant to the Contract Documents, free from all liens, Claims or encumbrances.

§ 3.4.6 Contractor shall comply with the Contract requirements and all applicable federal, state and local laws,

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§ 3.4.6.1 The Contractor shall maintain on the Project site the original payrolls or transcripts thereof which the Contractor and its Subcontractors are required to maintain pursuant to New York State Labor Law. The Contractor and its Subcontractors shall submit original payroll or transcripts, subscribed and affirmed by it as true, with each and every Application for Payment. The Contractor and Subcontractors shall produce within five (5) days on the Project site and upon a written order of the Construction Manager, Owner, or relevant legal authority having jurisdiction over the Project or Work, such original payrolls or transcripts thereof, subscribed and affirmed by it as true, and the statements signed by each worker. In addition, the Contractor and its Subcontractors shall furnish to the Construction Manager or Owner upon written demand any other information to satisfy the Construction Manager or Owner that this Section 3.4.6 and the New York Labor Law, as to the hours of employment and rates of wages are being observed. The Contractor shall maintain the payrolls or transcripts thereof for six (6) years from the date of completion of the Work of this Contract.

§ 3.4.6.2 When directed by the Construction Manager or Owner, the Contractor shall provide the Construction Manager with an attendance sheet for each day of which Work is performed on the Project site. Such attendance sheet shall be in a form acceptable to the Construction Manager or Owner and shall provide information for employees of the Contractor and its Subcontractors.

§ 3.4.7 All materials used permanently in the Work shall be new unless otherwise specified. The apparent silence of the Specifications as to any detailed description concerning any Work to be done and materials to be furnished shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the first quality are to be used, and all interpretations of the Specifications shall be made on this basis. All material incorporated in the Project shall be clean and exhibit no appearance of aging, exposure to weather, prior use, handling or damage of any kind.

§ 3.4.8 Manufacturer's identification shall be inconspicuous, but where nameplates contain information relative to characteristics or maintenance, they shall be clearly visible and located for easy access.

§ 3.4.9 Equipment intended for permanent installation shall not be operated for temporary purposes without the written permission of the Construction Manager and Owner.

§ 3.4.10 Materials shall be delivered in manufacturer's original sealed containers, with complete identification of contents and manufacturer, and kept sealed in original containers until used. Labels shall not be removed until materials have been installed and inspected.

§ 3.4.11 Whenever the Contract Documents require delivery by the Contractor of any materials, equipment, or other items, the term delivery shall be deemed to include unloading and storing with proper protection where directed.

§ 3.4.12 Where material is specified to be furnished by others or furnished and delivered only, the Contractor installing the material shall be responsible for scheduling the delivery and receiving, unloading, storing, handling, relocating, hoisting, distribution, laying out and installing the material.

§ 3.4.13 Materials shall be applied or installed under proper climatic conditions, not when they may be affected by temperature, moisture, humidity or dust.

§ 3.4.14 No materials incorporated into the Project Work shall contain asbestos. Materials shall be "asbestos free" containing zero percent (0%) asbestos. The Construction Manager and the Owner reserve the right to request certification from the material manufacturer through the Contractor for certification that materials installed contain zero percent (0%) asbestos.

§ 3.4.15 Contractor shall include in its base price the cost of all rigging and equipment required for the performance and installation of its Work.

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§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be the bestof 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 shall 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 Construction Manager, or Architect, or Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. The warranty provided in this Section 3.5 shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

§ 3.5.2 All warranties and/or guarantees shall include labor and materials and shall be signed by the manufacturer or Subcontractor as the case may be and countersigned by the Contractor. All warranties shall be addressed and assigned to the Owner and delivered to the Construction Manager upon completion of the Work and before the request for Final Payment. Contractor shall perform all Work in such a manner so as to preserve any and all such manufacturers' warranties.

§ 3.5.2.1 The Contractor will exercise its best efforts to service and to enforce for the benefit of Owner all manufacturers' warranties on all materials, equipment and fixtures incorporated into the Work.

§ 3.5.3 The warranties set forth herein shall survive completion, expiration and/or termination of this Contract.

§ 3.5.4 The Contractor will make good at its own cost and expense all defects and all damage caused to the Owner, due to correcting defective Work that is under warranty / guarantee. All corrections to defective Work shall be made at the convenience of the Owner.

§ 3.5.5 The Contractor represents that it is a manufacturer's approved Contractor in connection with the Work and will furnish the manufacturer's warranty to the Owner and Construction Manager.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in with Section 9.8 the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof 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. Notwithstanding the preceding, New York State sales tax is not applicable to any materials and supplies to be incorporated into the Project under the terms of the Contract, the Owner being exempt therefrom. There is no exemption from the sales or use tax on charges to the Contractor by any Subcontractor for the lease of tools, machinery, equipment or other property used in conjunction with the Project. The Contractor and its Subcontractors shall be solely responsible for and pay any and all applicable taxes, including sales and compensation for use taxes, on such leased tools, machinery equipment or other property, and for materials not incorporated in the Project and the amount of such taxes, if any, shall be deemed included in the bid submitted. Upon request, the Owner shall supply to the Contractor, an exemption certificate for such tax.

< Keep the following for NC Public Work>

§ 3.6 Taxes

§ 3.6.1 The Contractor shall provide the Owner shall two (2) notarized invoices with an itemized listing and supporting data for all such taxes paid, and the Owner shall reimburse the Contractor or such payments. Supporting documentation shall be in conformance with requirements of the State in which the Project is located.

< Keep the following for NY Public Work>

§ 3.6 Taxes

§ 3.6.1 Owner is exempt from payment of New York State, and Local Sales and Compensation Use Taxes on a supplies and materials incorporated into and becoming an integral component part of the structures, buildings, or

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real property pursuant to this Contract. Such taxes are therefore not to be included in the Contractor's bid or Contract Sum. Owner shall deliver to Contractor the appropriate exemption certificate required to be supplied by the Owner, and Contractor and its Subcontractors and materialmen shall be solely responsible for obtaining and delivering any and all exemption or other certificates and for furnishing a Contractor Exempt Purchase Certificate or other appropriate certificates to all persons, firms, or corporations from whom they purchase supplies, materials, and equipment for the performance of the Work.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 The Owner shall, if same is required, secure and pay for the general building permit only. Without limitation, the mechanical, electrical and plumbing permits, the health and environmental impact fees due to water and sewer connections, if any, and all other fees and permits necessary for the Work of the Project shall be secured and paid for by the individual Prime Contractors. The Contractor, in securing other permits for construction or with regard to any other aspect of the Work which requires a permit, notwithstanding any contrary language in the Contract, shall at its own cost and expense make the necessary arrangements to complete, file and have sealed by a Professional Engineer licensed in the jurisdiction, any and all preliminary affidavits of certification that may be required by the governing agency or agencies having jurisdiction for issuing permits for the Work which are legally required when bids are received, but in any case, prior to starting Work. Unless otherwise provided in the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay 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.

The Contractor shall promptly deliver copies of such documents to the Owner.

-If in connection with the Project, the Owner has obtained certain permits, licenses or agreements for the Project, the Owner will furnish copies of these documents to the Contractor. It is the Contractor's responsibility to comply with any conditions or limitations placed on the Project by these permits. The Contractor shall fully cooperate with the Owner in meeting the permit requirements and accommodations of regulatory inspections / directives.

§ 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. -Contractor shall pay any costs or fees incurred in such compliance and any fines or penalties imposed for violation hereof. In addition, Contractor shall to the fullest extent permitted by law indemnify, defend, and hold harmless the Owner, Construction Manager, and Architect (and their employees, officers, and agents) from any resulting fines, penalties, judgments or damages, including reasonable attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder) imposed on, or incurred by such indemnified parties due to any such violation (or alleged violation). This provision shall survive the completion or earlier termination of the Contract.

§ 3.7.2.1 The Contractor shall be responsible for and coordinate any and all inspections required by any governmental body having jurisdiction over the Work and secure approval of and comply with requirements of all such authorities and deliver certificates of approval to the Construction Manager and Owner, and shall prepare all documents, including drawings, necessary to secure such approval.

§ 3.7.2.2 Certificate of Occupancy:

- It shall be the responsibility of the Contractor to obtain all necessary approvals and releases from governing agencies having jurisdiction and to satisfy all requirements for the issuance and obtaining of any required certificates of occupancy.
- At such time as the Contractor makes application for any required certificate of occupancy, it shall, at its own cost and expense, file and have sealed by a Professional Engineer licensed in the jurisdiction, the final affidavit(s) of certification that the Project has been constructed in conformance with filed documents, ordinances, rules and regulations and such other data that may be required by the governing agency or agencies having jurisdiction over this Project.

Said certificate (if required for the Work of the Project) shall be turned over to the Construction Manager and Architect prior to certification of Final Payment and in conjunction with same. If the Contractor fails to give such notices as applicable to the performance of the Work, the Contractor shall be liable for and shall indemnify and

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hold harmless the Owner against any and all resulting fines, penalties, judgments or damages, including reasonable attorney fees, imposed on or incurred by the parties indemnified, as a result of such failures by the Contractor.

§ 3.7.3 If the Contractor performs Work <u>where it knowsing or should have known</u> 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. It shall be the obligation of the Contractor to review the Contract Documents to determine and to notify the Construction Manager and the Architect of any discrepancies between building codes and regulations of which the Contractor has knowledge or should be reasonably able to determine.

§ 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, Construction Manager, and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either partythe Contractor shall may proceed with submit a Claim as provided <u>and subject toin</u> Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, 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/Claims for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided im-and subject to Article 15.

§ 3.7.6 Upon completion of the Work, the Contractor shall deliver to the Architect original copies of all required final certificates of inspection, the Certificate of Occupancy, the other documents evidencing that inspections required by authorities having jurisdiction over the Work have been performed.

§ 3.8 Allowances

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

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

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§ 3.8.4 SEE SPECIFICATIONS – ALLOWANCES – SECTION 012100.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants. Prior to starting the Work, the Contractor shall designate the project manager, superintendent and other key individuals who shall be assigned to the Project through and including final completion. Such designation shall be in writing and provided to the Construction Manager, Architect and Owner. The superintendent who shall be in attendance at the Project site during throughout performance of the Work, including full completion of the punch list. The superintendent shall not be employed or used on any other project during the course of the Work. The superintendent shall be subject to approval by the Owner in its sole discretion. Said superintendent shall be qualified in the type of Work to be undertaken and shall not be changed during the course of construction without the prior written consent of the Owner in its discretion. Should the superintendent leave the Contractor's employ, Contractor shall promptly designate a new superintendent. Owner shall have the right, at any time, to direct a change in the Contractor's superintendent or any of its representatives if their performance is unsatisfactory in the determination of Owner in its discretion. In the event of such demand, Contractor shall, within five (5) days after delivery of notification thereof, replace said individuals(s) with an individual satisfactory to Owner. - The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The Owner shall have no obligation to direct or monitor the Contractor's employees. All references herein to the superintendent shall be taken to mean the Contractor's superintending staff. All substantive communications from Contractor to Construction Manager, Architect or Owner shall be made and/or confirmed in writing by Contractor.

<u>The Contractor's superintendent shall not be removed from this Project until the Project punch list has been</u> <u>completed and the Project has been accepted by the Owner. Unless approved otherwise by the Owner in advance,</u> <u>the Contractor's superintendent shall be assigned solely to this Project and shall not perform any duties or</u> <u>superintendence on any other Project until completion of this Project.</u>

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, through the Construction Manager, of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager to provide notice within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager, 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.

§ 3.9.2 The Contractor shall coordinate and supervise the work performed by Subcontractors so that the work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the work. The Contractor and all Subcontractors shall afford each trade reasonable opportunity for the installation of their work and the storage of their materials.

§ 3.9.3 It is required of any and all supervisory personnel proposed for use by any Contractor that said personnel be versed in the written and spoken English language or, said Contractor shall furnish a full-time on-site interpreter to facilitate communications between the Owner's Representative, Construction Manager and the Architect.

§ 3.9.4 Contractor shall furnish the Owner's Representative in writing the names, addresses and telephone numbers of the members of his organization who can be contacted in the event of an off-hours emergency at the building site.

§ 3.9.5 The Contractor shall attend progress meetings with the Owner's Representative and such other persons the Owner may wish to have present. The progress meetings shall include all key personnel on the job, including the Contractor and Subcontractors, or other persons in charge of various phases of the work.

§ 3.10 Contractor's Construction _and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall <u>prepare and submit for the Owner's and</u> Architect's information, and the Construction Manager's approval use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall <u>not exceed time limits current under the</u> 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 schedule to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Multiple Prime Contractors or the construction or operations of the Owner's own forcescontain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

§ 3.10.1.1 Submission of an accepted Construction Schedule shall be a prerequisite to initial payment. If the schedule is not submitted by said dates the Contractor has acknowledged his approving the Owner to complete a schedule for the Contractor. Such schedule will become the product and ownership of the Contractor and the Contractor will be back-charged all costs pertaining to the service of producing the schedule. The Contractor shall provide revised schedules at appropriate intervals as required by the Conditions of the Work and Project.

§ 3.10.1.2 Revisions to schedule shall be approved by the Owner.

§ 3.10.1.1 In the event that any updated Construction Schedule indicates a projected Substantial Completion date that is more than thirty (30) days after the required Substantial Completion date (as the same may be extended by the Change Order for Excusable Delay), the Owner shall have the right to direct the contractor to take corrective measures necessary to expedite the progress of construction, including, without limitation, (1) working additional shifts or overtime, (2) supplying additional manpower, equipment, facilities, (3) rescheduling activities, and (4) other similar measures (hereinafter referred to collectively as "Recovery Measures"). Such Recovery Measures shall continue until the progress of the Work complies with the state of completion required by the Construction Schedule. The Owner's right to require Recover Measures is solely for the purpose of ensuring the Contractor's compliance with the Construction Schedule.

- .1 The Contractor shall not be entitled to see an adjustment in the Contract Sum in connection with <u>Recovery Measures required by the Owner, unless they are incurred by the Contractor as directed in</u> writing by the Owner to mitigate or offset an Excusable Delay.
- .2 The Owner may exercise the rights furnished to the Owner under or pursuant to this Subparagraph 3.10.1.1 as frequently as is reasonably necessary to ensure that the Contractor's performance of the Work will comply with any milestone date or completion date set forth in the Construction Schedule.

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

§ 3.10.3 The Contractor shall participate with other <u>Multiple Prime</u> Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager (the "Project Schedule"). The Contractor shall make revisions to the its construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project <u>Schedule</u>. Failure of Contractor to notify Construction Manager, Owner and Architect of any objection, in writing, within five (5) business days of receipt of any Project Schedule, including the final, coordinated, detailed Project Schedule and/or any updates thereto, shall be deemed acknowledgement of Contractor's acceptance thereof.

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§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project sS chedule.

§ 3.10.5 The Contractor shall be responsible for coordinating and expediting its fabrication and delivery schedules and keeping the Construction Manager, Architect and Owner informed as to its progress and its anticipated ability to stay on schedule. The Contractor shall monitor the progress of the Work for conformance with the Project Schedule and shall promptly advise Construction Manager and Owner of any delays or potential delays. Contractor shall update and coordinate its construction schedule with the Project Schedule once a month or more frequently if requested.

§ 3.10.5.1 Without limitation to Section 3.10.5 above, the Contractor shall submit progress/status reports on fabrication on long lead items (items requiring four (4) weeks and over to fabricate) to the Construction Manager, Architect and Owner every week.

§ 3.10.6 The Contractor shall schedule, coordinate and perform its Work, in cooperation with the Construction Manager, Architect and Owner, so as to avoid conflict, delay in, or interference with the Work of other Multiple Prime Contractors or operations of the Owner's own forces. The Contractor is solely responsible for the accuracy and adequacy of the scheduling information it provides to the Construction Manager, Architect and Owner as necessary for preparation of the overall Project Schedule; therefore, the Contractor is solely responsible for the accuracy and adequacy of the Project Schedule (or its updates) as it pertains to the Contractor's Work.

§ 3.10.7 TIME IS OF THE ESSENCE to the Owner for the Contractor's completion of its Work and completion of the Project. Accordingly, the Contractor shall prosecute the Work diligently, using such means and methods of construction in accord with the requirements of this Contract and as will assure its completion not later than the date specified in the Contract Documents (or on the date to which time for completion may be extended only as consistent with the terms of this Contract).

§ 3.10.8 The Contractor shall avoid conflict, delay in or interference with the Work of other Multiple Prime Contractors or operations of the Owner's own forces, if any.

§ 3.10.9 The Contractor shall include in its base price, all out of sequence Work and any Work required to be performed during overtime hours or non-working hours necessary to maintain the Project Schedule or any separate Owner's move-in schedule.

§ 3.10.9.1 The Owner shall have the right to direct a postponement or rescheduling of any date or time for the performance of any part of the Work that may interfere with the operation of the Owner's premises or any tenants or invitee thereof. The Contractor shall, upon the Owner's request, reschedule any portion of the Work affecting operation of the premises during hours when the premises are not in operation. Any postponement, rescheduling or performance of the Work under this Section 3.10.9.1 may be grounds for an extension of the Contract Time, if permitted and subject to all provisions relating to such, so long as additionally: (1) the performance of the Work postponed or rescheduled was originally properly scheduled by the Contractor in compliance with the requirements of the Contract Documents and (2) such rescheduling or postponement is required solely for the convenience of the <u>Owner</u>

§ 3.10.10 If the Contractor shall fail to adhere to the approved Project Schedule, it shall (at no additional cost to Owner) promptly adopt such other means and methods of construction as will make up for the time lost and will assure completion in accordance with the approved Project Schedule.

§ 3.10.11 When the Contract Documents use the term "coordinate" and "coordination" in relation to the Contractor, those terms shall refer to the obligation of the Contractor to plan and direct its Work in cooperation and coordination with other Multiple Prime Contractors and with Owner's own forces at all times when the Work of the Contractor or its Subcontractors overlaps or dovetails with other work at the site, to the end that the overall Project Work is carried out continuously, in an efficient, workmanlike manner, without conflict between any trades, and so that no trade, at any time, causes delay to the general progress of the Work.

§ 3.10.12 The scheduling and coordination obligations of Construction Manager under this Contract are for the sole benefit of the Owner, and are not intended to create any rights whatsoever in favor of Contractor. The Contractor shall not have any Claim whatsoever against the Owner or Construction Manager or Architect arising out of any

alleged neglect or failure on the part of Owner or Construction Manager or Architect to schedule or coordinate the Work of the Contractor.

§ 3.11 Documents and Samples at the Site

§ 3.11.1 The Contractor shall make availablemaintain, at the Project site for the Owner, in addition to the Project Record copy held by the Construction Manager, one copy of the Drawings, Specifications, Addenda, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and <u>one copy of</u> the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed, and signed by the Contractor, certifying that they show complete exact "as-built" conditions, stating sizes, kind of materials, vital piping, conduit locations and similar matters. Project Record Documents are hereby made part of this paragraph.

§ 3.11.1.1 Each Prime Contractor shall provide a copy of daily field reports to the Construction Manager at the end of each week.

§ 3.11.1.2 The Contractor shall maintain at the Project site, and shall make available to Owner and Architect, one record copy of the Drawings (the "Record Drawings") in good order.

§ 3.11.1.3 The Record Drawings shall be prepared and updated during the prosecution of the Work.

§ 3.11.1.4 Final payment and any retainage shall not be due and owing to Contractor until the Drawings receive the approval from the Architect and the Owner (and all other close-out requirements are met).

§ 3.11.1.5 The Contractor shall maintain all approved permit drawings in a manner so as to make them accessible to government inspectors and other authorized agencies. All approved Drawings shall be wrapped, marked and delivered to the Owner within thirty (30) days of final completion of the Work.

§ 3.11.2 Contractor shall maintain current at the site at least one (1) set of record Contract Drawings on which shall be shown in a neat and accurate manner the actual installation of the Work, indicating thereon any variations from the Contract Drawings. Changes, whether resulting from formal Change Orders, Construction Change Directives, or other instructions issued by the Construction Manager or Architect, shall be recorded and shall include without limitation change in sizes, grades, locations and dimensions, and substituted materials.

§ 3.11.2.1 This process shall incorporate both the changes noted above and all other deviations from the original Drawings, whether resulting from Project conditions encountered for from any other cause. Principal dimensions of concealed work shall be recorded.

§ 3.11.2.2 At the completion of the Project, these prints shall be submitted to the Construction Manager for Architect's final inspection and comment. The Contractor shall revise these drawings as required by Architect for legibility and accuracy, and they shall be submitted to Construction Manager and Architect for Owner's records.

§ 3.11.3 Contractor shall prepare and maintain signed daily logs and reports containing among other things: the Contractor's employees at the site; the Subcontractors at the site and number of employees of each; the general work (and location of same) performed by Contractor and/or Subcontractors; temperature and weather conditions; and description in reasonable detail of any extraordinary or special occurrences or problems encountered and other similar relevant data as Construction Manager or Owner may reasonably require. Contractor shall make all such logs and reports available to Construction Manager and Owner at all times and shall immediately deliver copies of such to Construction Manager and Owner groupest.

§ 3.11.4 Contractor shall maintain on site and shall provide to Construction Manager and Owner, as Construction Manager or Owner may request, copies of all correspondence, memoranda and bulletins and other like documents to and from the Construction Manager, Architect, consultants, Subcontractors, suppliers, public agencies, and others on or relating to the Work of this Contract.

§ 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

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the Work. "Shop Drawings" as used herein includes fabrication, erection, layout and setting drawings; manufacturers' standard drawings; samples; schedules; descriptive literature, catalogs and brochures; performance and test data; calculations; wiring and control diagrams; all other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems and methods of construction as may be required to show that the materials, equipment or systems and the position thereof conform to the Contract Documents. Shop Drawings shall establish the actual detail of all manufactured or fabricated items; indicate proper relation to adjoining Work; amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure; and incorporate minor changes of construction to suit actual conditions. One complete set of all product data and approved Shop Drawings shall be submitted to the Owner as part of the close-out requirements.

§ 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.

§ 3.12.3.1 The Contractor shall submit for review to the Architect through the Construction Manager samples of materials listed under each section of the Specifications. Samples shall be properly labeled for identification, consisting of the following: job titles, sample number, submission number, and label large enough to receive Architect's stamps.

§ 3.12.3.2 The Contractor shall not commence work under sections of the specifications until the Architect's approval in writing is obtained for all listed samples.

§ 3.12.3.3 The Contractor shall not construe approval of advance samples as total guarantee of acceptance of materials. Materials will be subjected to field inspections, from time to time, as work progresses.

§ 3.12.3.4 Samples of specific manufactured products shall be accompanied with appropriate manufacturer's literature at time of submission.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.109 through 4.2.121. Informational submittals upon which the Construction Manager and Architect are 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 Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Multiple Prime Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Multiple Prime Contractors, Contractor shall review all submissions for completeness. Contractor is responsible to stamp all Shop Drawings prior to submission to the Construction Manager and Architect. All information requested in the Contract Documents or otherwise by the Construction Manager or Architect shall be provided by Contractor in the form and following such procedures prescribed by the Construction Manager and the Architect. Submittals/ Shop Drawings will be returned without review if the information is not provided as required or if procedures as prescribed are not followed to the Construction Manager's or Architect's satisfaction.

§ 3.12.5.1 Contractor shall generate a complete "Submittal Log" within one (1) calendar week of issuance of a Notice to Proceed or commencement of Work, whichever is earlier. This log shall list all required submittals specific to the trade as detailed in the Project Manual/Specifications. If Construction Manager provides a form for compliance with the terms of this Section, such form shall be used by Contractor.

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§ 3.12.5.2 All submissions shall be sent to the Construction Manager and Architect by any method required by Construction Manager and Architect for such submission.

§ 3.12.5.3 Contractor shall provide one transmittal for each submission package identifying each unique submission individually. For each submittal with the submission package, the Contractor shall identify the length of the delivery time and the necessary "last date" an item may be received on site. Contractor shall keep a log of all of its submissions in a manner reasonably prescribed by the Construction Manager and Architect.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, 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. Architect's review of such Shop Drawing and submittals is for the purpose of checking for conformance with information given and the design concept expressed in the Contract Documents; and not for the purpose of determining the accuracy and completeness of details such as field/site 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 its obligations under the Contract Documents. 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.

§ 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 reviewed and approved by the Architect. Contractor shall be responsible for all cost and expense relating to any work performed by it in violation of this Section.

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

§ 3.12.9 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 Construction Manager and Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written

approval when submitted to the Architect. The Owner, the Architect, and the Construction Manager shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

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

§ 3.12.11 Contractor is responsible for providing any required mock-ups required by the Contract Documents out of sequence as needed for the Project.

§ 3.12.12 All shop drawings for any architectural, structural, mechanical or electrical work must be submitted to the Architect through the Construction Manager. The Contractor represents and warrants that all shop drawings shall be prepared by persons and entities possessing expertise and experience in the trade for which the shop drawing is prepared and, if required by the Architect or applicable law, by a licensed engineer.

§ 3.12.12.1 Each shop drawing shall contain a title block with provisions for the following:

- (1) Number and Title of Drawing.
- (2) Date of Drawing or Revision.
- (3) Name of project.
- (4) Name of Contractor or Sub-contractor submitting Drawing.
- (5) Specification Section Title and Number.
- (6) Space for Architect's Stamp and Received Stamps.

§ 3.12.12.2 Each shop drawing shall have listed on it all Contract Reference Drawing Numbers plus Shop Drawing Numbers on related work by other Subcontractors if available.

§ 3.12.12.3 Each shop drawing submission shall have indicated on the drawing under the submission number (whether first, second, third, etc.).

§ 3.12.12.4 Shop drawings for work of one trade shall be checked by Subcontractors of related trades, and shall have received their stamp of approval before being submitted to the Architect.

§ 3.12.12.5 Each shop drawing submission after the first submission shall be clear of all previous stamps.

§ 3.12.13 Contractor shall communicate and supply Shop Drawings to other Contractors to ensure proper coordination.

§ 3.13 Use of Site

§ 3.13.1 <u>The Contractor shall have limited access to the site on the inside and outside of the Buildings.</u> The Contractor shall confine operations at the site to areas <u>designated by the Owner or Construction Manager and</u> permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

- .1 Due to the site constraints, only materials and equipment that are to be used in the Work shall be brought to and stored on the Project site by the Contractor. After materials and equipment are no longer required for the Work, they shall be promptly removed from the Project site. Protection of materials and equipment stored at the Project site from weather, theft, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and adjacent areas.
- .2 The Contractor shall not permit any workers to use existing facilities at the Project site, including, without limitation, lavatories, entrances and parking areas other than those designated and approved by the Owner.

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§ 3.13.1.1 The Owner's Representative shall establish the limits of the construction site in addition to any contract limit lines shown on the Drawings. The Contractor shall continue his operations within these limits, unless upon written request and reply, a variance is agreed to by the Construction Manager and the Owner. The Contractor shall be responsible for trespassing on and/or damage to other property by any of his employees or his subcontractors' employees.

§ 3.13.1.2 The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents.

§ 3.13.1.3 The Contractor shall be required to perform the work of the Project with no interruption to the Owner's operations. Any work which will interfere with the Owner's operations shall be performed on evenings and weekends when the Owner's facilities are not in operation. All costs incurred by the Owner to make the facilities available during those times shall be borne by the Contractor. The Owner reserves to itself the right to determine what work will "interfere" with its operations and said determination shall be final.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager <u>and Owner</u> before using any portion of the site. <u>Field personnel shall be confined to the Work area assigned.</u>

§ 3.13.3 Unless otherwise specified in the Contract Documents, Contractor is responsible for its own storage and personnel trailers at the site, and Contractor will be required to supply trailers and storage as required. All costs related to delivery, construction, protection, power, etc. shall be borne by the Contractor. The Owner (unless otherwise specified in the Contract Documents) WILL NOT PROVIDE STORAGE SPACE. The placement of trailers will be strictly limited to predetermined locations. Approval of the placement of any trailer or storage box must be received from the Construction Manager.

§ 3.13.1 Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it is to be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall be held responsible for repairs, patching, or cleaning arising from such use.

§ 3.13.4 The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times in the Owner. The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents.

§ 3.13.5 Contractor shall confine its use of the premises, for all purposes, to the areas occupied by the construction and related storage areas as and if shown.

§ 3.13.6 The Contractor shall provide all required temporary access walkways, both interior and exterior, temporary partitioning and the like necessary to complete all operations.

§ 3.13.7 The Contractor shall maintain unobstructed entrance to and/or exit from the present building complex. All Contractor's Work areas shall be kept clean each day of refuse. THE ENTIRE FACILITY WILL REMAIN IN OPERATION DURING THE COURSE OF THE ENTIRE CONSTRUCTION OPERATIONS. Contractor shall schedule its Work so as not to interfere with any traffic to and from the required areas of use. Contractor shall be responsible for maintaining all traffic and shall provide all required barriers and protection as required to safeguard the Work and the public and the occupants of the building during Construction.

§ 3.13.8 Contractor, its Subcontractors, workmen, suppliers, etc., will be held to adhere strictly to all Owner requirements and shall not occupy or carry on traffic through other parts of the site or interior of present buildings, except by specific permission from the Owner.

§ 3.13.9 The Contractor shall repair or replace any existing trees, shrubbery or other planting damaged by operations and/or workmen employed in performance of the Contract.

§ 3.13.10 During the whole course of the Work, the Contractor shall conduct its Work and operations as to interfere with traffic near the Work as little as possible and effect by every reasonable means the safety and comfort of pedestrians, vehicles and vehicle passengers near the Work.

§ 3.13.11 Employees, vehicles, equipment and material of Contractor and of all others utilized by the Contractor for the performance of its Work shall enter onto the construction site only at those locations designated or approved by the Owner as made known by Construction Manager.

§ 3.13.12 Contractor shall familiarize itself with all access and storage requirements and shall be subject to the same. Contractor shall properly maintain all access to Work and storage areas so that there will be continuous unimpeded access to the Work site in all seasons of the year, on all regular working days and during all regular working hours of any and all trades employed by any Contractor during Work at the site.

§ 3.13.13 Only such vehicles, trucks and equipment shall be parked or stored within the Work area as are absolutely necessary for performing the Work, for the length of time that a particular phase of Work is performed. ALL OTHER CONTRACTOR'S VEHICLES AND/OR EMPLOYEES' AND/OR WORKMEN'S VEHICLES, INCLUDING PASSENGER CARS, SHALL BE PARKED OFF THE SITE.

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

§ 3.13.15 Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including, without limitation, lavatories, toilets, entrances, and parking areas other than those designated by the Owner. Without limitation of any other provision of the Contract documents, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the building as amended from time to time. The Contractor shall immediately notify the Owner in writing if during the performance of the Work the Contractor finds compliance with any portion of the rules and regulations to be impracticable, setting forth the problems of such compliance and suggesting alternatives through which the same results intended by such portions of the rules and regulations can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives or require compliance with the existing requirements of the rules and regulations. The Contractor shall also comply with all insurance requirements and collective bargaining agreements applicable to use and occupancy of the Project site and the Building.

§ 3.13.16 The Contractor shall provide full and free access for the Architect, Construction Manager, Owner and/or their representatives, to inspect job materials, equipment, fabrication, facilities, and storage locations, at and away from the Project site.

§ 3.13.17 SECURITY:

§ 3.13.17.1 It will be the responsibility of the Contractor to provide necessary and required security measures to adequately safeguard the construction site from vandalism and intrusion of unauthorized persons.

§ 3.13.17.2 The Contractor shall submit the means and methods of security to the Owner through the Construction Manager. The Project site must be secured 24 hours a day, seven (7) days a week, including all holidays.

§ 3.13.17.3 All workpersons and employees of Contractor are prohibited from:

- .1 Trespassing or leaving any vehicle on any property not assigned by the Owner as set aside for the use of the Contractor.
- 2 Leaving any vehicle on the grounds unless it is locked, and the ignition keys are removed.

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§ 3.14 Cutting and Patching

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

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

§ 3.14.3 Only trades persons skilled and experienced in cutting and patching shall perform such work.

§ 3.14.4 Where required: Each Contractor before starting work shall consult with the Construction Manager and other Contractors to determine locations and sizes of required chases and openings for others. Construct chases and leave openings at proper locations and size to receive work of others. After work of others has been installed, fill in openings and/or patch around installed materials. After executing the above procedure, if chases, sleeves or openings are required after floors, walls, etc. are in place, the Contractor requiring such chases, sleeves or openings shall be responsible for cutting and patching as required for his work.

§ 3.14.5 The Contractor shall not cut, patch, damage or alter installed work, without the Architect's consent.
§ 3.14.3 All cutting and patching work shall be done by the Contractor (or through the appropriate Subcontractor).
Patches in finish surfaces shall match the adjacent surfaces in material, finish, detail, and quality. Patches in fire rated construction or construction required to be smoke tight shall be made in conformance with assemblies designed and tested by agencies recognized by governing codes. Any UL rated fire safing materials, flanges, or other materials required by Code, the Contract Documents, or manufacturer's installation instructions for devices penetrating the work affected shall be applied and installed by an approved firestop subcontractor or qualified personnel from the applicable trade.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. On a daily basis and. 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, and shall leave the entire area clean or its equivalent.

§ 3.15.1.1 The Contractor shall broom sweep all construction areas every day. The Construction Manager or Owner may perform an inspection each afternoon to determine that the Work areas of the Contractor have been properly cleaned.

§ 3.15.1.2 All Contractor's work areas shall be kept clean each day, of refuse, including containers, cups and the like. The facilities will remain in operation during the course of the entire construction operation. All Contractors performing work on this Contract shall schedule their work so as not to interfere with any traffic to and from the required areas of use. The Contractor shall be responsible for maintaining all traffic, and shall provide all barriers and protection as required to safeguard the work and the public and the occupants of the building during construction. The Prime Contractors shall comply with all state and local fire code regulations during construction. They include vehicular parking, smoke partitions, rescue window obstructions, use of extension cords.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so without notification to the Contractor and the Owner shall be entitled to reimbursement from the Contractor including reimbursement for the cost of the time of any custodial staff of Owner or cleaning contractors utilized for cleaning up.

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§ 3.15.3 All debris required to be removed from the Project shall be removed in accordance with all applicable federal, state and local statutes, laws, codes, ordinances, regulations, rules, and lawful orders of public authorities as they apply to such. The Contractor shall warrant that all debris shall be disposed of in accordance with all such applicable statutes, laws, codes, ordinances, regulations, rules, and lawful orders and at a facility permitted and authorized to receive materials of the type and nature so removed from the premises. To the fullest extent permitted by law, Contractor shall defend, indemnify and hold harmless the Owner, Architect and Construction Manager, from any claims, damages, losses and expenses, including, without limitation, attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder) of every kind character and nature whatsoever, arising out of or relating to Contractor's violation of this section but only to the extent caused by the negligent acts or omissions of the Contractor, any of its Subcontractors, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this section. The obligations of this section shall survive the completion of the Contract or its earlier expiration or termination.

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the Owner and its governing Board, Construction Manager, Architect, Construction Manager's and Architect's consultants, and , board members, officers, agents and employees of any of them from and against claims, damages, losses, liabilities, demands, causes of action, judgments and expenses, including but not limited to attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder), of every kind and character that are caused by, attributable to, arising out of or resulting from or are in any way connected, in whole or in part, to the performance of the Work, provided that such claim, damage, loss, liability, demand, cause of action, judgment or expense is attributable to (i) bodily injury, sickness, disease or death, or to injury to or (ii) 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 (an "Indemnified Claim"), regardless of whether or not such Indemnified Celaim, damage, loss, or expense is caused in part by a party indemnified hereunder or whether contractual liability for indemnity or liability without fault is sought to be imposed on the Owner or any other party indemnified hereunder. Notwithstanding the preceding, it is further agreed that notwithstanding any provision to the contrary in this section or anywhere else within this Contract or otherwise in the Contract Documents, all of the defense and indemnification and hold harmless obligations herein are subject and subordinate to the limitations of any applicable laws of the State of New York and in no event shall Contractor nor any other party be required to defend or indemnify any person in violation of such applicable laws. It is further understood that in the event that a court of competent jurisdiction determines that any of the defense or indemnification obligations hereunder are unenforceable in whole or in part, Contractor's obligation to defend and indemnify shall be replaced with the strictest enforceable defense and indemnification provision allowable by such laws. Such Contractor's obligations hereunder shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be

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liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

§ 3.18.3 The obligations contained in this Section 3.18 shall survive the completion or earlier expiration or termination of this Contract.

§ 3.19 Without limiting Section 3.18 above, the Contractor shall additionally, to the fullest extent permitted by law, defend, indemnify and hold harmless the Owner and its governing board. Construction Manager, Architect, Construction Manager's and Architect's consultants, and, board members, officers, agents and employees of any of them from and against any and all claims, damages, losses, liabilities, demands, causes of action, judgments or expenses including but not limited to attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder), of every kind and character that are caused by, attributable to, arise out of or result from or are in any way connected, in whole or in part, to Contractor's violation (or alleged violation) of any laws or regulations applicable to the Contractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable.

§ 3.19.1The obligations contained in this Section 3.19 shall survive the completion or earlier expiration or termination of this Contract.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

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

§ 4.1.2 The Owner shall retain a construction manager lawfully licensed to practice construction management or an entity lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

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

§ 4.1.4 It is expressly agreed and understood that at any time during the progress of the Project, the Architect and/or Construction Manager may be terminated and that such termination shall not for any reason whatsoever be deemed a breach of this Contract. If the employment of the Construction Manager or Architect is terminated, the Owner shall employ a successor construction manager or architect within a reasonable time whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 4.2 Administration of the Contract

§ 4.2.1 Without limiting the Architect's and/or Construction Manager's responsibilities and obligations to the Owner as set forth in their respective agreements with the Owner, Tthe Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Architect will also provide professional services as described in the Contract Documents. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 For the benefit of Owner only, and not Contractor, **T**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.

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However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner and Construction Manager (1) known deviations from the Contract Documents and (2) defects and deficiencies observed in the Work. This shall not be deemed as any type of limitation on the Architect's responsibilities and obligations to the Owner as set forth in its agreement with the Owner.

§ 4.2.2.1 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for site visits made necessary by the fault of the Contractor to maintain the Project Schedule or for defects and deficiencies in the Work. The Owner may see reimbursement pursuant to the procedures set forth in § 9.5.1 these General Conditions.

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. For the benefit of Owner only, and not Contractor, Tthe Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect (1)-known deviations from the Contract Documents and the most recent Project schedule, and (2) defects and deficiencies observed in the Work. This shall not be deemed as any type of limitation on the Construction Manager's responsibilities and obligations to the Owner as set forth in its agreement with the Owner.

§ 4.2.4 The <u>Construction ManagerContractor</u> will <u>schedule and</u> coordinate <u>the its</u> activities <u>of the Contractor</u> <u>andwith those of</u> other <u>Multiple Prime</u> Contractors in accordance with the latest approved Project schedule <u>and in</u> <u>conformance with other requirements of the Contract Documents. SEE SPECIFICATIONS – MULTIPLE</u> <u>CONTRACT SUMMARY – SECTION 011200.</u>

§ 4.2.4.1 If there is a coordination conflict between or among any Multiple Prime Contractors, and if the Owner or a Prime Contractor makes a written request to the Construction Manager, the Construction Manager shall use its best efforts to recommend a reasonable solution. The Construction Manager shall make such recommendations consistent with the latest approved Project Schedule, to the extent reasonably possible, as judged by the Construction Manager and Owner in reviewing the Project Schedule when directed to do so. If so directed by Construction Manager or Owner in order to resolve coordination conflicts, the Contractor shall change the sequence or schedule of its Work in the manner provided for in these General Conditions and as otherwise may be required under the Contractor, other Multiple Prime Contractors, the Architect, Construction Manager and the Owner unless subsequently updated.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and 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, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications <u>Facilitating Contract Administration</u>. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized. <u>Tthe Owner shall communicate with the</u> Contractor <u>shall endeavor to communicate with the Owner throughand</u> the Construction Manager and <u>shall</u> contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents. The Owner may generally communicate with the Contractor through the Construction Manager, but there shall be no limitation on Owner's right to directly communication with Contractor. When Contractor responds to Owner following a direct communication from Owner to Contractor, Contractor shall contemporaneously provide a copy of the same communications to the Construction Manager. Contractor's communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall generally be through the Contractor, but there shall be no limitation on Construction Manager's, Owner's, and Architect's right to directly communication with Subcontractors and material suppliers as they deem necessary in their discretion. Contractor's communications by and with other Multiple Prime Contractors shall be through the Construction Manager and shall be contemporaneously provided to the Architect if those communications are about matters arising out of or related to the Contract Documents. Contractor's communications by and with the Owner's own forces shall be through the Owner.

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

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. The Construction Manager shall, for the benefit of the Owner only, determine in general whether the Work of the Contractor is being performed in accordance with the requirements of the Contract Documents and notify the Owner, Contractor and Architect of defects and deficiencies in the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require additional inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, upon written authorization of the Owner, whether or not such Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing any of the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall/give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

§ 4.2.940 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other <u>Multiple Prime</u> Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other <u>Multiple Prime</u> Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.104 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. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.121 Review of the Contractor's submittals by the Construction Manager and Architect 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 Construction Manager and 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 Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.132 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.1<u>3</u>4 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.154 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.165 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.1<u>6</u>7 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives. Intentionally Omitted

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

§ 4.2.198 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 the Contractor, will not show partiality to either, and will not be liable to the Contractor for results of interpretations or decisions so rendered in good faith.

§ 4.2.<u>1920</u> The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents and agreed to by Owner in writing.

§ 4.2.204 The Construction Manager will receive and review requests for information (<u>"RFIs"</u>) from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request

will be made in writing within any time limits agreed upon or otherwise with reasonable promptness, <u>but Contractor</u> shall be obligated to submit RFIs in a reasonable time in advance of its need for a response to enable Construction Manager and Architect a sufficient time to act upon such submission or necessary re-submission(s) thereof. Based upon the amount of RFI's received and their level of content, the Construction Manager and Architect shall jointly establish the level of importance of each RFI and shall be allowed a reasonable amount of time in their respective judgment to permit adequate review. The Contractor shall not have any right to an extension of Contract Time on account of delays due to the Contractor's failure to submit requests for the required information or the required approval in accordance with these requirements. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

§ 4.2.20.1 Prior to submitting each RFI, Contractor shall first carefully study and compare the Contract Documents, field conditions, other Owner provided information, Contractor prepared coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtainable from such sources. Each RFI shall identify the specific sources which were reviewed by the Contractor in an effort to determine the information requested, and a statement to the effect that the information being requested could not be determined from such sources.

§ 4.2.20.2 The Contractor shall be responsible to generate its own RFI log with weekly updates and provide same to the Construction Manager. This log shall contain the Drawing reference or Specification section to which the request pertains, the date of the request, to whom the request was made, by whom the request was made, the nature of the request, and the Architect's resolution thereof. This log shall be reviewed at each Project meeting.

§ 4.2.20.3 The Contractor shall reimburse the Owner amounts charged to the Owner by the Architect for responding to Contractor requests for information where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared coordination Drawings, or prior Project correspondence or documentation.

§ 4.2.22 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.

- <u>.1 The Contractor's request for information shall be prepared and submitted in accordance with the</u> <u>General Requirements (Division 01 of the Specifications) on the form included therein or as</u> <u>otherwise approved in advance. The Architect will return requests for information that do not</u> <u>conform to requirements of the Contract Documents.</u>
- .2 The Architect's response to a request for information (RFI), or issuance of a clarification or interpretation shall be considered an interpretation, clarification, supplemental information or an order for a minor change in the Work not involving an adjustment in Contract Sum or extension of Contract Time and not inconsistent with the intent of the Contract Documents, and shall be binding, unless indicated otherwise in the Architect's response to the RFI.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DefinitionsGeneral

§ 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 or to otherwise furnish labor, material or other services with respect to a portion of the Work, and includes, but is not limited to, Specialists, Specialty Contractor, and Trade Subcontractors. 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 "Subcontractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors.

§ 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 or to otherwise furnish labor, material or other services with respect to a portion of the Work. 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.

§ 5.1.3 The term "Specialist" or "Specialty Contractor" shall mean an individual or firm of established reputation, or, if newly organized, whose personnel have previously established a reputation in the same field, which is regularly engaged in, and which maintains a regular force of workmen skilled in either manufacturing or fabricating

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items required by the Contract, installing items required by the Contract, or otherwise performing work required by the Contract. Where the Contract Specifications require installation by a "Specialist", that term shall also be deemed to mean either the manufacturer of the item, an individual or firm licensed by the manufacturer, or an individual or firm who will perform such work under the manufacturer's direct supervision.

§ 5.1.4 Refer to Div. 1 of the Specifications for requirements for a delivery of a list of proposed Subcontractors to Construction Manager and Architect with or after receipt of bids and before award of Contract.

§ 5.1.5 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Construction Manager the names of the Subcontractors or suppliers for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Construction Manager or Architect has made reasonable written objection after receipt of the Contractor's list of Subcontractors and suppliers. The Contractor shall propose another Subcontractor to whom the Owner, Construction Manager and Architect have no reasonable objections. No increase in the Contract Sum or extension of the Contract Time shall be allowed where a Subcontractor is rejected by the Owner, Construction Manager or Architect who is deemed unqualified to perform the particular work subcontracted by the Contractor or otherwise not responsible, or having too many current projects handled by insufficient personnel.

§ 5.1.6 All Subcontractors of any tier or specialty are required to be bound by and comply with the Project Labor Agreement annexed to and made a part of these Conditions. All Subcontractors of any tier or specialty are required to sign a Letter of Assent as a condition of performing work for the Owner.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Construction Manager, for review by the Owner, Construction Manager and Architect, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. Failure of the Construction Manager to provide notice within the 14 day period shall constitute notice of no reasonable objection.

The listing required by this Section shall be submitted to the Architect no later than 30 days from the date of the Agreement. This list shall include the names of manufacturers, suppliers, and installers proposed for each of the products, equipment, and materials to be incorporated into the Project.

The Contractor shall furnish upon request adequate data on any named entity on the list in order to permit the Architect and the Owner to conduct a proper evaluation. Failure to object to a manufacturer shall not constitute a waiver of any of the requirements of the Contract Documents and all products furnished by the listed manufacturer must conform to such requirements.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager 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, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

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§ 5.2 The Contractor shall not enter into any Subcontract, contract, agreement, purchase order or other arrangement for the furnishing of any portion of the materials, services, equipment or Work with any party or entity if such party or entity is an "Affiliated Entity", unless such arrangement has been approved by the Owner, after full disclosure in relationship and all details relating to the proposed arrangement. The term "Affiliated Entity" means any entity related to or affiliated with the Contractor with respect to which the Contractor has direct or indirect ownership or control, including, without limitation:

- (i) Any entity owned in whole or in part by the Contractor;
- (ii) Any holder of more than ten percent (10%) of the issued and outstanding shares of, or the holder of any interest in, the Contractor; or
- Any entity in which any officer, director, employee, partner or shareholder or member of the family of any of the foregoing persons) of the Contractor or any entity owned by the Contractor has a direct or indirect interest, which interest includes, but is not limited to, that of a partner, employee, agent or shareholder.
- (iii)

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, <u>including the Project Labor Agreement</u>, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, that the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager 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, will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor swill 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<u>Article 14</u> 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 from and after the date on which Owner determines to accept any subcontract agreements(s). All sums due and owing by Contractor to any Subcontractor(s) and/or supplier(s) for Work performed or material supplied prior to the date of Owner's election to accept assignment of such subcontract agreement(s) and/or purchase order(s) shall constitute a debt between such Subcontractor(s)/material supplier(s) and Contractor. Contractor shall deliver acknowledgment in form and substance satisfactory to Owner from each of its Subcontractors and suppliers of the contingent assignment described herein whenever requested by Owner in writing.

<u>, provided that the Owner shall not be under any obligation to compensate the Subcontractor with respect to amounts</u> that the Owner has already paid to the Contractor for such Subcontractor's work.

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

§ 5.4.3-2 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity,

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the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

§ 5.5 **Owner Payments to Subcontractors**

§ 5.5.1 In the event of any default hereunder by the Contractor, or in the event the Owner, Construction Manager, or Architect fails to approve any Application for Payment, that is not the fault of a Subcontractor, the Owner may make direct payment to the Subcontractor, less appropriate retainage. In that event, the amount so paid the Subcontractor shall be deducted from the payment due to the Contractor.

§ 5.5.2 Nothing contained herein shall create any obligation on the part of the Owner to make any payments to any Subcontractors, and no payment by the Owner to any Subcontractor shall create any obligation to make any further payments to any Subcontractor, nor shall it create any contractual or other relationship between Owner and Subcontractor.

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS ARTICLE 6

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 In addition to the other Multiple Prime Contractors on this Project, if any, Tthe Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other 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's own forces or by other Multiple Prime Contractors, the Contractor shall make such Claim as provided in the Contract Documents.and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.1.1 Should the Contractor sustain any damage or delay through any act or omission of any other Contractor having a contract with the Owner for the delivery of materials, supplies, equipment, plant or appliances, or should the Contractor sustain any damage or delay through any act or omission of a Subcontractor, the Contract shall have no claim against the Owner or their Architects for such damage or delay but shall have a right to recover or to claim damage only form the other Contractor or Subcontractor.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces including persons or entities under separate contracts not administered by the Construction Manageror Separate Contractors, the Owner shall provide that such contractors shall coordinate their work with the Work of the Contractor, who shall cooperate and coordinate with them so as to avoid delays.for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 SEE SPECIFICATIONS – MULTIPLE CONTRACT SUMMARY – SECTION 011200. Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility Among Contractor and Other Multiple Prime Contractors and/or Owner's Own Forces § 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Multiple Prime 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's own forces, Separate Contractors or other Multiple Prime Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect discoverable of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Multiple Prime Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or

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defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other <u>Multiple Prime</u> Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

§ 6.2.3 Coordination and Claims among and between Contractor and other Multiple Prime Contractors and Owner's Own forces. The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, 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 delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.

§ 6.2.3.1 The Contractor shall not commit or permit any act which will interfere with the performance of work by any of Owner's own forces or any other Multiple Prime Contractor involved with the work (collectively referred to in this Section 6.2.3 and its subsections as "Other Contractors"). If the Contractor sustains any damage through any act or omission of Other Contractors or utilities having a contract with the Owner for the performance of work upon the site or of work which may be necessary to be performed for the proper execution of the Work to be performed hereunder, or through any act or omission of a subcontractor of such Other Contractor and/or utility, the Contractor shall have no claim against the Owner for such damage, but shall have a right to recover such damage from the Other Contractor and/or utility under the provision similar to the this Section 6.2.3 and its subsections which have or will be inserted in the contracts with such Other Contractors and/or utilities.

- (i) Should any Other Contractor having or who shall hereunder have a contract with the Owner for the performance of Work upon the site, sustain any damage through any act or omission of the Contractor hereunder or through any act or omission of any subcontractor of the Contractor, the Contractor agrees to reimburse such Other Contractor for all such damages and to defend at its own expense any suit based upon such claim.
- (ii) The Contractor agrees to the fullest extent permitted by law to defend and indemnify Owner, Architect and Construction Manager from all claims, causes of action, damages, losses and expense, made against or suffered by any of them arising out of Contractor's acts or omissions of the acts or omissions of any subcontractor of the Contractor.
- (iii) The Owner's right to indemnification hereunder shall in no way be diminished, waived or discharged, by the exercise of any other remedy provided for by the Contract or by law.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Separate Contractors, or other <u>Multiple Prime</u> Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner's own, Separate Contractors, and forces and other Multiple Prime Contractors 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, other Multiple Prime 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 without providing any prior written notice may clean up using its employees or cleaning contractor and the Construction Manager, with notice to 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 issued by the Architect, Construction Change Directive or Field \oplus Order for a minor change in the Work, issued by the Architect or Construction -subjectManager, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. Change Orders shall be submitted in total amounts for a particular change and not in installments for each trade thereafter. All partial Change Order submissions will be rejected and returned to the Contractor for completion.

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

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work. <u>A change in the Contract Sum or Contract Time shall be accomplished only by Change Order or Construction Change Directive</u>. Accordingly, no course of conduct or dealings between the Parties or express or implied acceptance of alterations or additions to the Work shall be the basis of any Claim for an increase in the Contract Sum or any amounts due under the Contract Documents or an extension of the Contract Time.

§ 7.2 Change Orders

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

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

§ 7.2.42 Unless otherwise agreed to in writing by the Owner and the Contractor, the combined overhead and profit that shall be included in the total cost (or credit) to the Owner for a Change in the Work shall be based on the following schedule:

- .1 For the Contractor, for Work performed by the Contractor's own forces:
 - a. 15% on the first \$25,000 of the change order direct cost of self-performed work,
 - b. 10% on the portion of the change order direct cost of self-performed work between \$25,000 and \$50,000 and
 - c. 7.5% on the portion of the change order direct cost of self-performed work between \$50,000 and \$200,000 and
 - d. 5% on the portion of the change order direct cost of self-performed work greater than \$200,000.
- .2 For the Contractor, for Work performed by the Contractor's Subcontractor five percent (5%) of the amount due the Subcontractor,
- .3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, fifteen percent (15%) of the cost,
- <u>.4</u> For each Subcontractor involved, for Work performed by the Subcontractor's Sub-subcontractors, five percent (5%) of the amount due the Sub-subcontractor,
- .5 Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.7 and shall be itemized (including labor costs).

§ 7.2.32 A Change Order, when issued, shall be full compensation, or credit, for the extra Work performed, omitted, or substituted. It shall show on its face, any adjustment in time for completion of the Project as a result of the Change in the Work. Each Change Order shall include all costs related thereto, including all overhead, miscellaneous expenses, and incidentals.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager 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. No change in Contract Time shall be allowed for Change Orders performed by Contractor, except for substantial changes in scope determined by the Owner. In the case of increased scope, it is expected that Change Order Work shall be performed by increased manpower

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

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

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4<u>7</u>.

§ 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 Construction Manager and 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 the basis for preparing a Change Order for final Owner approval.

§ 7.3.47 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, <u>Owner in consultation with</u> the Construction Manager <u>and Architect</u> shall determine the <u>method and the</u> 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 <u>Owner and Construction Manager may prescribe</u>, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.47 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; applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Construction Manager and Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

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

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

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

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§ 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 <u>Owner</u>, Construction Manager and 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 the allowance for overhead and profit shall be figured in accordance with Section 7.1.42.1.

§ 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. . If Owner accepts such request in its sole discretion and subject to any qualifications regarding such acceptance. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified, which amount shall be subject to Owner's acceptance in its discretion. The 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. To the extent Contractor does not request payment for Work completed under the Construction Change Directive to the Owner), or to the extent Owner does not accept a Contractor request for payment for such Work, Contractor shall perform such Work without payment, subject to its rights to pursue a Claim for such as provided in and subject to Article 15 and other applicable provisions of the Contract Documents. Any refusal by the Contractor to commence or perform any disputed Construction Change Directive Work for which it Claims or requests a Change Order, as directed by Owner, shall constitute a material breach of this Contract by Contractor.

§ 7.3.10 Agreement to any Change Order (whether resulting from Change Order request/Claim by Contractor or Construction Change Directive or otherwise) shall constitute a final settlement by Contractor of all matters arising out of or relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and/or the Contract Time. When the Owner and Contractor agree with a determination made by the Construction Manager and 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 Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The <u>Owner, through the Construction Manager or the</u> Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The <u>Construction Manager's or</u> Architect's order for minor changes shall be in writing and shall be binding on the <u>Contractor</u>. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Construction Manager that such change will affect the Contract Sum or Contract Time, the Contract Sum or extension of the Contract Time.

§ 7.5 Field Orders

§ 7.5.1 Field Orders are an interpretation of the Contract Documents or an order to do minor changes in the Work. Since time is of the essence, Contractor shall promptly complete the Work directed in the Field Order. Field Orders shall provide the means to a written order described in 7.4. Failure to proceed with a Field Order, which will adversely impact the completion of the project or delay the work of another contractor, shall be just cause for the Owner taking over the Work, or termination of Contract.

§ 7.5.2 Field Orders are not to be construed as Change Orders. A signed Field Order is not an approved Change Order.

§ 7.5.3 Neither the Owner, Architect nor Construction Manager shall sign field tickets, work orders or any other document prepared by the Contractor. Should the Contractor desire to record extra work performed, the Contractor may request that the work be monitored by the Construction Manager and submit a copy of the field ticket/work

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order immediately upon completion of such work. The Contractor may also request a copy of the Construction Manager's log.

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. Work remaining to be completed after Substantial Completion shall be limited to items which can ordinarily be completed within the period between the payment at the time of Substantial and Final payment.

§ 8.1.3.1 "Milestone Dates" are dates critical to the Owner's operations that establish when a part of the Work is to commence or be complete. All Milestone Dates, to the extent that there are any in the Project Schedule, are of the essence and shall have the same meaning as the Required Substantial Completion Date for the purpose of Liquidated Delay Damages in this Article 8. Liquidated damages applied to Substantial Completion shall apply likewise to Milestone Dates when completion requirements for such are missed and shall be incurred until the completion requirements for such Milestone Dates are actually achieved.

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

§ 8.1.5 The Date of Final Completion of the Work is the date all of the Work required under the Contract Documents is completed, and all applicable licenses, permits, certificates, or approvals have been obtained by the Contractor and delivered to the Owner to the extent provided for in the Owner–Contractor Agreement.

§ 8.1.6 Regular School Hours shall mean the time school is in session on any given day. Off Regular Hours shall mean all other time during the day. Regular School Days shall mean days school is in session. (See school calendar)

§ 8.1.7 Refer to Article 12 of the Project Labor Agreement for provisions on Hours of Work, Premium Payments, Shifts and Holidays.

§ 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. Contractor recognizes that the Project Schedule is of critical importance to the Owner. All aspects of construction must reflect that 'TIME IS OF THE ESSENCE' to the Owner.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, <u>prematurely</u> commence <u>operations on the site or elsewhere the Work</u> prior to the effective date of insurance required by <u>Article</u> <u>11</u> to be furnished by the Contractor and Owner. <u>The date of commencement of the Work shall not be changed by</u> 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. <u>Failure to prosecute the Work diligently, using such means and methods of construction consistent with the requirements of this Contract to ensure that the Work of the Project meets all Milestone Dates shall jeopardize the overall Project Schedule. This failure will mandate Contractor to increase staff, work overtime, or use other means to recover time, at the costs of Contractor. In addition, all costs due to delays in completion of the Work shall be borne by the Multiple Prime Contractor(s) responsible for delays.</u>

§ 8.2.3.1 Contractor shall cooperate with the Owner, Architect, Engineer, Construction Manager and other Contractors on the Project, making every reasonable effort to reduce the Contract Time.

§ 8.2.4 The Contractor may request access to the site during times beyond the work hours permitted. Approval is solely at the discretion of the Owner. If approval is given, the Contractor is responsible for paying all additional

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costs incurred by the Owner, Architect and Owner's Representative for providing the site to the Contractor during the additional time periods.

§ 8.3 Delays and Extensions of Time § 8.3.1

Absent Contractor's breach of contract or negligence in the performance of its Work and obligations under this Contract, Contractor shall be entitled to a time extension pursuant to a Change Order signed by Owner in the amount of time determined by Owner in its reasonable discretion to be appropriate for delays caused by the following occurrences, but only if such delays are proven to Owner in its reasonable discretion to demonstrably affect the critical path of the Project Schedule as relating to the Work of this Contract: the consequences of Acts of God (such as tornado, flood, fire, hurricane, etc.); unusually adverse weather; industry-wide labor strikes or industry-wide material shortages; wars or acts of terrorism; rebellion; riot; civil disobedience; embargoes; sabotage; stop work orders issued or other action or inaction by governmental or other authorities having jurisdiction over the Project or the Work and outside the reasonable control of Contractor; the presence of hazardous materials that are not the responsibility of the Contractor nor about which Contractor does not reasonably have knowledge at the time of execution of the Contract; non-compliance of the Drawings and Specifications with laws, statutes, regulations and other legal requirements (unless otherwise the responsibility of the Contractor pursuant to the Contract Documents); changes to laws, statutes, regulations and other legal requirements after execution of this Agreement (unless otherwise the responsibility of the Contractor pursuant to the Contract Documents); actions or inactions of the Construction Manager, Architect, the other Multiple Prime Contractors, Owner's other contractors, or Owner which occur through no fault of the Construction Manager; the Construction Manager's or Architect's failure to reasonably furnish instructions or Drawings or to reasonably act on submissions through no fault of Contractor; or events outside the reasonable control of Construction Manager (for which it is not contractually responsible) which could not have been reasonably foreseen by Contractor in the development of the Project Schedule for the Work of this Contract (collectively "Contemplated Delays"). If the Contractor is delayed at any time in the commencement or progress of the Work by any Contemplated Delay, then the Contractor shall submit a Claim for an extension of the Contract Time as set forth in Section 8.3.2 and its subsections, and, for Claims not waived by Contractor by operation of Article 8 or Article 15 or other applicable provisions of the Contract Documents, the Contract Time may be extended by Change Order for such time as the Owner may determine in its sole reasonable discretion. No such Change Order extending the Contract Time, however, shall result in any increased payments to the Contractor for overhead, extended overhead, or for any other amounts of any nature whatsoever (see Section 15.1.5 and its subsections).

If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner<u>or</u>, <u>Architect</u>, <u>Construction Manager</u>, or an employee of any of them<u>either</u>, or of the Owner's own forces, <u>a</u> Separate Contractors; or other Contractors; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts and the Architect, based on the recommendation of the Construction Manager, determines justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

In the event that the Owner, the Contractor or the Architect is delayed or hindered in or prevented from the performance of any act required by the Contract Documents by reason of a labor dispute, fire, failure of power, unusual delay in deliveries, adverse weather conditions not reasonably anticipatable, unavoidable casualties or other causes of a like nature beyond the Owner's, the Contractor's or the Architect's control, the Contractor (or its Subcontractors) shall not be entitled to any additional compensation.

§ 8.3.1.1 An extension of time shall be only for the number of days of delay which the Architect may determine to be due solely to the causes set forth in the application for extension of time. The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently; but if at all, only the actual period of delay as determined by the Architect.

§ 8.3.1.2 The Contractor shall be responsible for labor peace on the Project and shall at all times exert its best efforts and judgment as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes where reasonably possible and practical under the circumstances and shall, at all times, maintain Project wide labor harmony. The Contractor shall be liable to the Owner for all damages suffered by the Owner occurring as a result of work stoppages, slowdowns, disputes or strikes except as specifically provided for elsewhere in these Conditions.

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§ 8.3.1.3 All costs for expedited material procurement to meet the schedule shall be the responsibility of the Contractor.

§ 8.3.2 Time Limits and other Requirements for Contractor's Notice of Claims for Extension of Contract Time for Contemplated Delay. Notwithstanding anything contained elsewhere in the Contract Documents to the contrary, it is a condition precedent to Contractor's ability to pursue any Claim for extension of Contract Time that the Claim must be initiated by written notice by Contractor to the Owner with a copy sent to the Construction Manager and Architect in strict compliance with the requirements of this Section 8.3.2 (and its subsections). So that the Owner can properly investigate the Claim, TIME IS EXPRESSLY OF THE ESSENCE WITH RESPECT TO CONTRACTOR'S GIVING OF NOTICE OF CLAIM TO OWNER WITH THE INFORMATION AS PROVIDED HEREIN AS A CONDITION PRECEDENT TO ITS ABILITY TO ASSERT OR OTHERWISE PURSUE ANY CLAIM FOR EXTENSION OF THE CONTRACT TIME.

§ 8.3.2.1 Any Claim for Contract Time extension relating to an Contemplated Delay shall be made by Contractor to Owner in writing, with a copy sent to the Construction Manager and Architect, within seven (7) days after Contractor knew or should have known of the cause of the delay and its impact to the critical path item affected; with such written notice advising Owner of the existence, nature and effect of such condition, occurrence, or event upon the approved Project Schedule as relating to Contractor's Work, and must state why and in what respects, if any, the condition is causing or may cause a delay along with demonstrable proof of the alleged impact on the critical path of the approved Project Schedule as relating to Contractor's Work. Contractor's Claim shall suggest strategies to Owner to mitigate the effect of any such delay including without limitation overtime, re-sequencing and other remedial methods.

§ 8.3.2.2 No Claim for extension of the Contract Time due to weather conditions will be considered unless accompanied by documentary evidence showing that such weather is unusually severe and abnormal for the past 50 years and could not have been reasonably anticipated (or reasonably protected against), and unless the weather conditions had an adverse effect on the critical path of the Project Schedule as relating to Contractor's Work.

§ 8.3.2.3 Failure of the Owner to respond in writing within thirty (30) days following delivery of Contractor's written notice required by this Section 8.3.2 and its subsections shall be deemed a rejection of the Claim.

§ 8.3.2.4 Failure of the Contractor to strictly comply with the requirements of Section 8.3.2 (and its subsections) shall be deemed a conclusive waiver by the Contractor of any and all Claims for damages for delay and/or extension of the Contract Time regarding delay arising from such conditions, occurrences or events.

§ 8.3.2.5 The determination of the Owner regarding any Claim for an extension of Contract Time by notice of delay as provided herein shall be binding and conclusive on the Contractor.

§ 8.3.2.6 Permitting the Contractor to continue with the Work after the time fixed for its completion has expired, or after the time to which such completion may have been extended has expired, or the making of any payment to the Contractor after such time, shall in no way operate as a waiver on the part of the Owner of any of its rights under this Contract.

§ 8.3.2.7 When the Contract Time has been extended, as provided under this Section 8.3, such extension of time shall not be considered as justifying extra compensation to the Contractor for administrative costs of other similar reasons.

Claims relating to time shall be made in accordance with applicable provisions of Article 15; however, the Contractor's Claims, if any, for any increase in Contract Time must be made in accordance with the time requirements of this Section. Claims for an increase in Contract Time must be made in writing to the Initial Decision Maker. Claims must be initiated within seven (7) days after the Contractor has notice of the delay (initial notice). Thereafter, the Contractor must provide full details and support documentation with regard to the cause of the delay within twenty one (21) days of the initial notice of the delay. If either the initial notice or the supporting documentation is not submitted to the Initial Decision Maker with a copy to the Architect, if the Architect, if the Architect is not support in contract Time shall be waived. If the cause for the delay is a continuing one, then only one Claim is necessary. The Contractor's supporting documentation to the Initial Decision Maker and/or Architect shall include an estimate of cost, if any, and of the probable effect of the delay on the progress of the Work and the Project Schedule.

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§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by Owner under other provisions of the <u>Contract Documents</u>. This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents. This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents. <u>Unless expressly provided otherwise in the Contract Documents</u>, an extension of the Contract Time, to the extent permitted under Subparagraph 8.3.1 shall be the sole remedy of the Contractor for any (1) delay in the commencement, prosecution or completion of the Work, (2) hindrance or obstruction in the performance of the Work, (3) loss of productivity, or (4) other similar claims (collectively referred to in this Subparagraph 8.3.3 as "Delays") whether or not such Delays are foreseeable unless a Delay is caused by acts of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner (an "Owner <u>Caused Delay"</u>), in which case the Contractor shall also be entitled to an equitable adjustment of the Contract Sum provided that the Contractor provides to the Owner written notice of such Owner-Caused Delay within ten (10) days of the occurrence of the event giving rise to such Owner Caused Delay, whichever is later.

§ 8.3.4 In no event shall the Contractor be entitled to damages for delay under the Contract (see Section 15.1.5 and its subsections).

§ 8.3.5 To the extent the Contractor is required to work during overtime hours, weekends, holidays or at other times which are not regularly scheduled, due to the fault of the Contractor, or where Contractor requests to work during these periods to facilitate its schedule, the Contractor shall be responsible for the costs incurred by the Owner, the Construction Manager, the Architect and/or others attributable to working during periods which have not been ordinarily scheduled.

§ 8.4 Liquidated Delay Damages. IT IS AGREED THAT TIME IS OF THE ESSENCE IN THE PERFORMANCE OF THIS AGREEMENT. IN THE EVENT CONTRACTOR FAILS TO ACHIEVE SUBSTANTIAL COMPLETION OF THE WORK BY THE REQUIRED SUBSTANTIAL COMPLETION DATE, CONTRACTOR AGREES TO PAY OWNER LIQUIDATED DELAY DAMAGES AS SET FORTH HEREIN. Contractor acknowledges that the date for Substantial Completion of the Work as required under the Contract Documents is of the foremost importance and that its failure to achieve Substantial Completion of the entire Work of its Contract for the Project no later than the Required Substantial Completion Date set forth in Section 3.3 of the Agreement and the approved Project Schedule (as may only be adjusted per the terms of this Contract) will result in extreme hardship to Owner and will irreparably interfere with Owner's obligations and commitments, and that it would be extremely difficult and impractical to ascertain and fix the actual damages the Owner would incur. Accordingly, the Parties hereby stipulate and agree that if Contractor shall fail to achieve the Required Substantial Completion Date, Contractor shall be assessed the agreed upon liquidated damages amount of Five Hundred and 00/100/Dollars (\$500.00) per day commencing on the first day after the Required Substantial Completion Date, as such amount is agreed to be the amount of damages Owner would sustain and such amount shall not be construed as a penalty but as liquidated damages for breach of contract as a reasonable estimate of the damages Owner will suffer as relating to such delay ("Liquidated Delay Damages"). Such Liquidated Delay Damages shall not be in lieu of or related Owner's actual damages relating to deficiencies or defective Work or to other breaches of the Contract separate from delayed completion. Liquidated Delay Damages shall begin to accrue when the Work under this Contract is not complete by the Required Substantial Completion Date applicable hereto and shall continue to accrue until the date on which the Work of the entire Contract is complete. Liquidated Delay Damages shall also begin to accrue when the Work under the Contract is not completed by any earlier Milestone Dates, as indicated on the agreed upon and approved Project Schedule. Such Liquidated Delay Damages may be withheld from progress payments at Owner's sole discretion.

§ 8.4.1 No Release. It is further expressly agreed and understood that Owner's assessment of Liquidated Delay Damages is intended to compensate Owner solely for Contractor's failure to meet the Required Substantial Completion Date deadline (and any earlier Milestone Dates) and shall not release Contractor from liability from any other breach of requirements set forth in any of the Contract Documents, including, without limitation, any failure of the Work to conform to applicable requirements.

§ 8.5 Acceleration Due to Contractor Delay – Extraordinary Measures

§ 8.5.1 Extraordinary Measures: In the event the Owner determines that the performance of the Work, relative to the Contract Time required for the Required Substantial Completion Date and/or earlier Milestone Dates for the Project Schedule as relating to the Work of this Contract has not progressed or reached the level of completion required by the Contract Documents, and such delayed performance was not caused by a delay for which the Owner
in its reasonable discretion has agreed to an extension of Contract Time pursuant to Section 8.3.1 above, the Owner through the Construction Manager shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction of the Work ("Extraordinary Measures"). The Owner's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the Project Schedule for the Work of this Contract relating to delayed performance for which the Contractor has not developed alternative recovery plans acceptable to the Owner. The Owner's right to order the Contractor to take corrective Extraordinary Measures pursuant to this Section 8.5.1 include, without limitation: (1) working additional shifts or overtime; (2) supplying additional manpower, equipment and facilities; and (3) other similar measures. Such Extraordinary Measures shall continue until the progress of the Work complies with the stage of completion required by the Project Schedule for the Work of this Contract.

§ 8.5.2 The Contractor shall not be entitled to an adjustment to the Contract Sum in connection with Extraordinary Measures required by the Owner pursuant to this Section 8.5 and its subsections.

§ 8.5.3 The Owner may exercise the rights furnished the Owner under or pursuant to this Section 8.5 and its subsections as frequently as the Owner deems necessary to ensure that the Contractor's performance of the Work will comply with the Required Substantial Completion Date (and any earlier completion milestones) set forth in the Project Schedule for the Work.

§ 8.5.4 Any rights conferred on the Owner pursuant to this Section 8.5 and its subsections or in any other portion of the Contract Documents shall neither require Owner to exercise such rights for the benefit of itself or the Contractor or any other person or entity or, nor shall they make Owner responsible in any way whatsoever for the Contractor's obligation to complete the Work of the Contract by the Required Substantial Completion Date in conformance with the Project Schedule.

§ 8.5.5 Any refusal by the Contractor to commence or perform such acceleration/expedited Work when appropriately requested by Owner pursuant to this Section 8.5 (and its subsections) shall constitute a material breach of this Contract by Contractor.

§ 8.6 Acceleration for Owner's Convenience. At the Owner's option, the Contractor shall Work additional shifts or overtime, and/or supply additional manpower, equipment and facilities, and/or take other similar measures as directed by the Owner in writing and the Owner shall have the right to expedite the Work, even out of sequence. Provided the Contractor is: (i) not behind in the progress of its Work (see Section 8.5 and its subsections above), and (ii) not otherwise in default of any of the provisions of the Contract Documents; the Owner shall reimburse the Contractor for the actual out of pocket additional labor costs (i.e., additional wages, fringe benefits, insurance) associated with such acceleration and/or overtime Work. Time slips covering said additional wages must be submitted by Contractor and checked and approved by the Construction Manager on a daily basis. Any refusal by the Contractor to commence or perform such overtime Work shall constitute a material breach of this Contract by Contractor.

§ 8.6.1 If the Owner demands acceleration pursuant to this 8.6 and its subsections it shall only be in writing with an express identification that acceleration for Owner's convenience is demanded pursuant to this Section 8.6 and its subsections. Any other demand or request for acceleration shall be deemed to be under Section 8.5 and its subsections (Extraordinary Measures) at no cost to Owner. In the event that Contractor believes that some action of the part of Owner constitutes an acceleration directive under Section 8.6 and its subsections, the Contractor shall immediately notify Owner in writing that Contractor considers the actions as an acceleration directive. This written notification shall detail the circumstances of the claimed acceleration directive. Failure of Contractor to deliver such written notice to Owner prior to commencement of any acceleration efforts shall be deemed as a conclusive representation by Contractor that it agrees that any such activities and efforts are required by the Contract Documents as part of its base Work and/or are provided pursuant to Section 8.5 above and its subsections at no cost to Owner and no adjustment of the Contract Sum, and Contractor agrees that is shall be forever estopped from asserting otherwise. The Contractor shall not accelerate its efforts until the Owner responds in writing to the written notification. If acceleration is then directed or required by the Owner, all cost records relating thereto above shall be maintained by the Contractor and provided to the Owner through the Construction Manager on a daily basis.

§ 8.6.1.1 The Contractor shall keep cost and other Project records related to any acceleration directive separately from normal Project costs and records and shall provide a written record of acceleration cost to the Owner through Construction Manager on a daily basis.

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§ 8.6.1.2 As a further requirement in order to preserve a claim to recover additional costs due to acceleration, the Contractor must document that additional expenses were incurred and paid by the Contractor. Labor costs recoverable will be only overtime or shift premium costs or the cost of additional laborers brought to the site to accomplish the accelerated work effort. Equipment costs recoverable will be only the cost of added equipment mobilized to the site to accomplish the accelerated work effort.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

§ 9.1.1 Notwithstanding anything to the contrary contained in the Contract Documents, the Owner may withhold any payment to the Contractor hereunder if the Owner determines in its sole discretion that the Contractor has failed to adequately perform its Work or is otherwise in default under any of the Contract Documents; provided, however, that any such withholding shall be limited to an amount (as determined by Owner in its sole discretion) sufficient to cure any such default or failure of performance by the Contractor and is otherwise in compliance with applicable law.

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

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, t<u>T</u>he Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, <u>a "Schedule of Values"</u> allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. The Schedule of Values submitted by Contractor will be adjusted as required by Construction Manager or <u>Architect as necessary for their approval</u>. This schedule, <u>unless objected toonce approved</u> by the Construction Manager or <u>Architect</u>, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's (and the Multiple Prime Contractors') s<u>S</u>chedule of <u>values</u>. The Schedule of Values shall be provided on the AIA G702 form and no payments will be made to Contractor until such billing breakdown and initial submissions are approved.

Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.2.1 The Contractor and each Subcontractor shall prepare a trade payment breakdown for the work for which it is responsible, such breakdown being submitted on a uniform standardized form reasonably approved by the Architect and Owner (AIA G703). The form shall be divided in detail sufficient to exhibit area, floors, and/or sections of the Work, and/or by convenient units and shall be updated as required by either the Owner or the Architect as necessary to reflect (1) description of Work (listing labor and material separately), (2) total value, (3) percent of the Work completed to date, (4) value of the Wwork completed to date, (5) percent of previous amount billed, (6) previous amount billed, (7) current percent completed, and (8) value of Work completed to date. Any trade breakdown that unreasonably fails to include sufficient detailfunds is unbalanced or exhibits "front loading" of the value of the Work shall be rejected. If trade breakdown had been initially approved and subsequently used, but later found improper for any reason, sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work. Breakdown shall include multiple construction sites, multiple locations within each site, additions vs. renovation work, etc. as required to satisfy State Education Department requirements. shall be withheld from future Applications for Payment to ensure an adequate reserve (including of normal retainage) to complete the Work.

§ 9.3 Applications for Payment

§ 9.3.1 On a monthly basisAt least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the Sschedule of +Values, if required under Section 9.2, for completed portions of the Work in compliance with all requirements of Article 5 of the Agreement (modified AIA Document A132–2009) and elsewhere in the Contract

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The form Application for Payment, duly notarized, shall be the most recent authorized edition of AIA Document G702, Application and Certificate for Payment, supported by the most recent authorized edition of AIA Document G703, Continuation Sheet.

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

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

§ 9.3.1.3 Until final completion and acceptance of the Work in accordance with Section 9.10, the Owner shall pay ninety-five (95%) percent of the amount of each progress payment due the Contractor, minus monies withheld for any duly filed liens against said Contractor, provided that a valid performance bond has been furnished and is in full force and effect at the time when periodic payments are due. Otherwise, progressive payments shall be paid at the ninety (90%) percent amount of each progressive payment due the Contractor, minus monies withheld for any duly filed liens against the Contractor.

§ 9.3.1.4 Applications for Payment must be accompanied by any and all releases of liens for previous applications from Contractor and his Subcontractors and a sworn and notarized statement that all subcontractors have been paid to at least ninety-five percent (95%) of previously requisitioned sums. As-built drawings showing all Work up to the time of the Request for Payment shall be prerequisite for making payment.

§ 9.3.1.5 Contractors must submit separate Applications for Payment for each facility or per State Education Department Number. Only one Application for Payment may be submitted for payment for each month.
§ 9.3.1.3 Each Application for Payment shall be submitted electronically and in four (4) hard copies and shall be accompanied by the following, in all form and substance reasonably satisfactory to the Owner, (1) a current conditional Contractor's waiver of claims and liens, and duly executed an acknowledged sworn statement showing all Subcontractors and material suppliers with whom the Contractor has entered into subcontracts, the amount of each such subcontract, the amount requested for any Subcontractor and material supplier in the requested progress payment, and the amount to be paid to the Contractor from such progress payment together with similar sworn statements from all Subcontractors and material suppliers; (2) duly executed unconditional waivers of claims and liens from all Subcontractors and, when appropriate, from material suppliers and lower tier Subcontractors establishing payment or satisfaction of payment of all amounts requested by the Contract on behalf of such entities or information and materials required to comply with the requirements of the Contract Documents or reasonably requested by the Owner or the Architect or required by the Owner's title insurer.

§ 9.3.1.4 Unless otherwise agreed to in writing, until Substantial Completion, the Owner shall pay the Contractor CHOOSE ONE: ninety percent (90%) OR ninety five (95%) OR as otherwise agreed to of the amount due the Contractor.

§ 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 and under such terms as required by Owner in its sole discretion. 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. Such payment by the Owner for materials, equipment, fixtures and supplies stored on or off the Site shall not relieve the Contractor of its responsibility to provide reasonable protection of said materials, equipment, fixtures and supplies until there incorporation into the Work.

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§ 9.3.2.1 Without limitation to the generality of Section 9.3.2: (i) Contractor shall obtain the consent of any Surety to the extent required prior to payment for any materials stored off the Project site; (ii) representatives of the Owner shall have the right to make inspections of the storage areas at any time; and (iii) Such materials shall be (1) protected from diversion, destruction, theft and damage to the satisfaction of the Owner, (2) specifically marked for use on the Project, and (3) segregated from other materials at the storage facility.

§ 9.3.2.2 Procedures required by Owner shall include, but are not necessarily limited to, submission by the Contractor to the Architect of bills of sale and bills of lading for such materials and equipment, provision of opportunity for Architect's visual verification that such materials and equipment are in fact in storage, and, if stored off-site, submission by the Contractor of verification that materials and equipment are stored in a bonded warehouse.

§ 9.3.2.3 All such materials and equipment, including materials and equipment stored on-site but not yet incorporated into the Work, upon which partial payments have been made shall become the property of the Owner, but the care and protection of such materials and equipment shall remain the responsibility of the Contractor until incorporation into the Work, including maintaining insurance coverage on a replacement cost basis without voluntary deductible.

§ 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, <u>material</u> suppliers, or other persons or entities <u>making a claim by reason of having</u> that provided labor, materials and equipment relating to the Work.

§ 9.3.1 The Contractor shall save and keep the Owner and the Owner's property free from all liens and claims, legal or equitable, arising out of Contractor's work hereunder. In the event any such lien is filed by anyone claiming by, through or under the Contractor, the Contractor shall remove and discharge same within ten (10) days of the filing thereof. The Contractor further expressly undertakes to defend the Indemnitees at the Contractor's sole expense against any actions, lawsuits or proceedings brought against Indemnitees as a result of liens filed against the Work, the site of any of the Work, the Project site and any improvements thereon, payments due the Contractor or any portion of the property of any of the Indemnitees referred to collectively as liens in this Section 9.3.3.1. The Contractor hereby agrees to indemnify and hold Indemnitees harmless against any such liens or claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits or proceedings.

§ 9.3.2 The Owner shall release any payments withheld due to a lien or claim of lien if the Contractor obtains security acceptable to the Owner or a lien bond which is: (1) issued by a surety acceptable to the Owner, (2) in form and substance satisfactory to the Owner, and (3) in an amount not less than One Hundred Fifty percent (150%) of such lien claim. By posting a lien bond or other acceptable security, however, the Contractor shall not be relieved of any responsibilities or obligations under this Section 9.3, including, without limitation, the duty to defend and indemnify the Indemnitees. The cost of any premiums incurred in connection with such bonds and security shall be the responsibility of the Contractor and shall not be part of, or cause any adjustment to, the Contract Sum.

§ 9.3.3.3 Notwithstanding the foregoing, the Owner reserves the right to settle any disputed mechanic's or material men's lien claim by payments to the lien claimant or by such other means as the Owner, in the Owner's sole discretion, determines is the most economical or advantageous method of settling the dispute. The Contractor shall promptly reimburse the Owner, upon demand, for any payments to be made other than those made from the retainage under the Owner-Contractor Contract.

§ 9.3.4 In connection with all progress payments, the Contractor shall submit releases/waivers of lien with respect to all Work previously performed and for which payments were made under a preceding application. Beginning with the second payment requisition and with each subsequent payment requisition, Contractor shall furnish to Owner, without limitation, the following documents:

- a. Labor and/or Materials Affidavit
- b. Daily and Weekly Wage Affidavit;
- c. Contractor's Partial Release and Waiver of Lien

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d. Written Certified Payroll information in compliance with applicable laws; and e. Additional information required by the Construction Manager Owner and/or any applicable laws, codes, rules and or regulations applicable to the Work of the Contractor.

§ 9.3.5 The Contractor shall submit a "pencil-copy" requisition to the Construction Manager no later than the date as directed by the Construction Manager for work completed up to that day for review with field personnel and for comparison to the Contractor's as-built drawings which shall be updated daily per the General Conditions. After any adjustments are made, the Contractor shall finalize and submit to the Construction Manager no later than the date as directed by the Construction Manager five (5) copies of the requisition, signed and notarized. for the Construction Manager's final approval and signature. The Owner shall make payment within thirty (30) days.
§ 9.3.3.1 The Contractor further expressly undertakes to defend the Owner, against any actions, lawsuits, or proceedings brought against the Owner as a result of liens related to the Work unless the reason for the lien is the nonpayment by the Owner to the Contractor in accordance with the Contract Documents (referred to as "liens" in this Subparagraph). The Contractor hereby agrees to indemnify and hold the Owner harmless against any such liens or claims of liens and agrees to pay any final judgement or lien if the reason for the judgement or lien is the nonpayment by the Owner to Contractor in accordance with the Contract Documents.

§ 9.3.3.2 The Owner shall release any payments withheld due to lien or claim of lien if the Contractor obtains security acceptable to the Owner or a lien discharge bond that is (1) issued by a surety acceptable to the Owner; (2) in form and substance satisfactory to the Owner, and (3) in an amount required by law to release such lien claim. By posting a lien discharge bond or other acceptable security, however, the Contractor shall not be relieved of any responsibilities or obligations under Subparagraph 9.3.3.1 including without limitation, the duty to defend and indemnify the Owner. The cost of any premiums incurred in connection with such bonds and security shall be the responsibility of the Contractor and shall not be part of, or cause any adjustment to, the Contract Sum.

§ 9.4 Certificates for Payment

§ 9.4.1 Pursuant to the procedures and timelines set forth in Article 5 of the Agreement (modified AIA Document A132–2019) and elsewhere in the Contract Documents, Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, the Construction Manager and Architect will either issue to the Owner a Certificate for Payment for such amount as the Construction Manager and Architect determine is properly due based upon their respective reviews of same, or notify Owner in writing of the Construction Manager's and/or Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the notice of withholding certification.

review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.Intentionally Omitted.

§ 9.4.2.1 <u>Intentionally Omitted</u>. Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is

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§ 9.4.3 The Construction Manager's certification of an Application for Payment-or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the <u>information provided as part of data in</u> the Application or Applications for Payment. The Construction Manager's certification will constitute a representation, to and for the benefit of the Owner only, that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified. The certification will also constitute a recommendation to the Architect and Owner that the Contractor be paid the amount certified.

§ 9.4.4 The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and <u>information provided as part of data in</u> the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation to and for the benefit of the Owner thatonly, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.3 and 9.4.4 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 Construction Manager or Architect.

§ 9.4.6 The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment-in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or 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 Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor or other <u>Multiple Prime</u> Contractor;

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- .6 reasonable evidence that the Work will not be completed within the Contract Time, and or that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated <u>any</u> failure to carry out the Work in accordance with the Contract Documents.
- .8 violations of law applicable to the Work which are the responsibility of Contractor;
- .9 erroneous estimates of the percentage of Work performed;
- .10 Contractor's failure to give notice of errors and inconsistencies; or
- .11 failure of Contractor to comply with mandatory requirements for maintaining record drawings (*NOTE* - Contractor may be required to check record drawings each month. Written confirmation that the record drawings are "up-to-date" may be required by the Architect before approval of the Contractor's monthly Application for Payment will be considered).
- .12 any other reasonable grounds for objection or withholding as provided in the agreement or as permitted by law.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld. The Owner shall not be deemed in default by reason of withholding payment while any conditions described in 9.5.1 remain.

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

§ 9.5.<u>3</u>4 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

§ 9.5.4 If the Contractor disputes any determination by the Construction Manager or Architect with regard to any Certificate of Payment, the Contractor nevertheless shall expeditiously continue to prosecute the Work.

§ 9.5.5 The Owner shall not be deemed to be in breach of this Contract by reason of the withholding of any payment pursuant to any provision of the Contract Documents provided either the Construction Manager or Architect has approved the Owner's action, or the Work for which payment is being withheld shall have been rejected by any governmental authority or the Owner.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment-or Project 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 Construction Manager and Architect. No partial payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or relieve the Contractor of any of its obligations hereunder with respect thereto.

§ 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. Notwithstanding anything in the Contract to the contrary, the Contractor shall pay each Subcontractor or materialman as required by New York General Municipal Law Section 106(b), for work performed by the Subcontractor or materialman under this Contract. The Contractor shall include in each of its Subcontracts a provision requiring each Subcontractor to make payment to each of its subcontractors or suppliers for Work performed under this Contract in the same manner and within the same time period as set forth herein.

§ 9.6.2.1 The Contractor shall indemnify and hold the Owner harmless from laborers, mechanics and materialmen liens upon the Owner's properties or the premises upon which the work is located, arising out of the work performed or materials furnished by the Contractor or any of its Subcontractors or any material suppliers under the Contract.

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

§ 9.6.4 The Owner has the right but no obligation to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

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

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

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

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

§ 9.7 Failure of Payment

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven thirty-five days after the date established in the Contract Documents, the amount certified by the Construction Manager and Architect and such certified amount is not otherwise appropriately withheld by Owner pursuant to operation any of the terms and conditions of the Contract Documentsor awarded by binding dispute resolution, then the Contractor may, upon seven (7) additional business days' written notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount appropriately owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents such that the Work shall have been completed and all systems included in the Work shall be operational in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use to the reasonable exclusion of Contractor with only "Punch-List" or minor items remaining which can be corrected or completed without any material interference with Owner's use of the Work. It is a condition precedent to Substantial Completion that the Owner has received all Certificates of Occupancy and any permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project.

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§ 9.8.1.1 When advised by the Contractor that the Work is substantially completed, the Architect and the Contractor shall, within a reasonable time, make a joint inspection of the work and if the Architect shall determine the Work is substantially completed, the Contractor shall submit a substantial completion application.

§ 9.8.1.2 Notifications by the Contractor to the Architect for inspections to confirm Substantial Completion as parts and/or as a whole shall be judiciously made and without abusing said process.

§ 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 notify the Construction Manager, and the Contractor and Construction Manager shall jointly 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.

§ 9.8.2.1 When the Work, or major portions thereof as contemplated by the terms of the Contract, has been substantially completed the Contractor shall submit to the Owner through the Construction Manager and the Architect an Application for Payment of the remaining amount of the Contract balance. Upon receipt of such application, the Owner shall approve and promptly pay the remaining amount of the Contract balance less two times the value of any remaining items to be completed and an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. As the remaining items of Work are satisfactorily completed or corrected, the Owner shall promptly pay, upon receipt of a requisition through the Construction Manager and the Architect, for those items less an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. Any claims, liens and judgments referred to in this subparagraph shall pertain to the Project and shall be filed in accordance with the terms of the applicable Contract and/or applicable laws.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, 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 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, assisted by the Construction Manager, to determine Substantial Completion. If the Architect and/or Construction Manager are required to perform multiple inspections because the Work fails to comply with the Contract Documents, the amount of compensation paid to the Architect or Construction Manager by Owner for additional services shall be reimbursed by Contractor to Owner and may at Owner's discretion be deducted from payments (or final payment) otherwise payable to Contractor, if available.

The Architect will perform no more than two (2) inspections to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections pursuant to Section 9.5.1

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

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

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§ 9.8.6 For any uncompleted work at the time of Substantial Completion, the Owner will retain the monetized value of the remaining work, i.e. "punch list", times 200 percent as determined by the Construction Manager, in addition to any duly filed and unresolved liens against the Contractor as per Section 106-b of the N.Y.S. General Municipal Law, which will be released upon notification by the Contractor to the Construction Manager that the Work has been completed to the Architect's satisfaction.

§ 9.9 Partial Occupancy or Use § 9.9.1

The occupancy of any portion of the building does not constitute an acceptance of any Work as the Project will be accepted as a whole and not in units, and the building will be occupied during the Project. Such occupancy does not relieve the Contractor from completing the Work within the time period specified. The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly 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 after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, 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.

§ 9.9.32 Unless otherwise agreed upon, <u>any</u> 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 <u>nor does it waive the</u> <u>Owner's right to liquidated damages</u>. Further such occupancy alone shall not determine when <u>Substantial</u> <u>Completion and the performance have been reached</u>.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager will evaluate shall perform an inspection to confirm the completion of Work of the Contractor. - The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, 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 the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project 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. If the Architect and/or Construction Manager are required to perform multiple inspections because the Work fails to comply with the Contract Documents, the amount of compensation paid to the Architect or Construction Manager by Owner for additional services shall be reimbursed by Contractor to Owner and may at Owner's discretion be deducted from payments (or final payment) otherwise payable to Contractor, if available.

§ 9.10.1.1 The Architect will perform no more than two (2) inspections whether the Work or a designated portion thereof has attained Final Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections. The Owner may seek reimbursement pursuant to Section 9.5.1.

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- One (42) hard copyies and one (1) electronic Record Set of Drawings showing actual construction of .1 all portions of the Work and incorporating all changes and amendments thereto, as redlined against the 100% Construction Drawings.
- Guarantees and Warranties required by specific Sections of the Specifications. .2
- Release and Waiver of Claims, conditioned upon Final Payment, by the General Contractor, .3 Subcontractors, Sub-subcontractors and material suppliers.
- All mechanical and electrical installation, operating and maintenance manuals called for under the .4 Specifications.
- All test reports and certifications required under the mechanical and electrical specifications. .5
- All forms required to be completed by the Contractor by regulatory governmental agencies with two .6 copies delivered to the Architect.
- .7 Shop Drawing submittals in accordance with Article 3.
- A copy of the unconditional Occupancy Permit or Certificate of Compliance issued by the local Building Inspection Department having Jurisdiction, unless such is not issued for any reason that is not the responsibility of the Contractor under the Contract Documents or is caused by circumstances beyond the Contractor's control.
- .89 Manufacturer's current detailed installation instructions for fire dampers, ceiling radiation dampers, smoke dampers, and duct smoke detectors as applicable to the Project.
- .9.10 TwoOne (21) copiesy of the equipment operational and maintenance manuals.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys fees. Additionally, all warranties and guarantees required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Construction Manager prior to submission of a final Application for Payment. The Construction Manager and Architect shall additionally not issue the Final Certificate for Payment until the all warranties and guarantees have been received, accepted and approved and until the following have occurred:

- .1 the Owner has received the final certificate of occupancy for the Project or that portion of the Project which encompasses the Work of the Contractor, if relevant;
- the Project or that portion of the Project which encompasses the Work of the Contractor has been .2 completed and accepted, and;
- .3 all procedures regarding final payment have been completed and the Owner has received state agency approval (if required) to make final payment, and otherwise all approvals and/or sign-offs have been obtained from any authorities having jurisdiction over the Work or the Project which are required with respect to the Work of this Contract.

§ 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 Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is

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less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager 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.Intentionally Omitted.

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

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

.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.<u>Intentionally</u> Omitted.

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

§ 9.10.6 In the event the Contractor does not achieve Final Completion within thirty (30) days after the date of substantial completion, allowing for any approved extensions of the contract time. Contractor shall not be entitled to any further payment and Contractor hereby agrees that such failure to complete the work within the time set forth above shall constitute a waiver of all claims by the Contractor to any money that may be due. This provision shall not operate as a waiver by the Owner of any claims or remedies of any nature against the Contractor arising out of the Contract.

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. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.1.1 Contractor shall submit its site safety and corporate safety policy/program to the Construction Manager in no event later than within two (2) weeks following issuance of a Notice to Proceed or commencement of Work, whichever is earlier. The safety policy/program shall be in conformance with and meet or exceed OSHA standards and other applicable federal, state and local statutes, laws, codes, ordinances, regulations, rules, and lawful orders of public authorities. The safety policy/program shall also include provisions requiring Subcontractors to participate in safety training to acquaint such Subcontractors with the provisions of the Regulations of the Commissioner of Education (Section 155.5) and shall set forth how the Contractor plans to maintain a safe work environment.

§ 10.2 Safety of Persons and Property

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

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;
- .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; and
- .4 construction or operations by the Owner, Separate Contractors, or other Contractors.
- .5 the work of the Owner or other separate contractors.

Prior to commencement of the Work, the Contractor shall document existing conditions, record existing damage to construction or property at the site to remain and notify the Construction Manager and Architect of the same in writing.

§ 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.

§ 10.2.2.1 The Contractor agrees in working on the Owner's premises to comply with all applicable codes and safety regulations as they apply to the Work and as set forth in the Occupational Safety and Health Act of 1970 (OSHA), as revised to date.

§ 10.2.2.2 Additional Requirements:

.1	Ladders and scaffolding shall be in good operating condition. Any damaged ladders, bakers, and
	rolling scaffolding shall be immediately removed from job.
.2	Ground properly all electric operated tools.
.3	Wear protective eye goggles during any cutting, whether by hand or mechanical means.
.4	Remove nails, screws, bolts and tack strips from floor immediately after demolition.
.5	Workmen to have proper shoes and clothing as per OSHA recommendation.

§ 10.2.2.3 During the COVID-19 pandemic, other epidemics and any declaration of emergency as a result thereof, the Contractor shall ensure that its employees are provided with and use face masks, exercise social distancing at the workplace and follow any other safety requirements required by federal and state law.

§ 10.2.2.4 The Contractor agrees, in order that the work will be completed with the greatest degree of safety: To conform to the requirements of the OSHA as amended and the Construction Safety Act of 1969 as amended, including all standards and regulations that have been since or shall be promulgated by the governmental authorities which administer such acts, and shall hold harmless the Owner, Owner's Representative, the Construction Manager, the Architect, and all their employees, consultants and representatives from any and all claims, damages, losses, suits obligations, fines, penalties, costs, charges and expenses which may be imposed upon or incurred by or asserted against any of them by reason of any act or omission of such Contractor or any Subcontractor or any person or firm directly or indirectly employed by such Contractor, with respect to violations of OSHA requirements, rules and/or regulations.

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

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel and give the Owner reasonable advance notice, and shall maintain on the site, a full set of safety instructions relating to all such materials.

§ 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, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, 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, 10.2.1.3 and 10.2.1.4. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any 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, Construction Manager 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 <u>Contractor or any Subcontractor (or any employee or anyone for whom either of them are legally</u> <u>responsible)either party</u> suffers injury or damage to person or property <u>because of an act or omission of the other</u> <u>party, or of others for whose acts such party is legally responsible</u>, notice of the injury or damage, whether or not insured, shall be given to the <u>other partyConstruction Manager and Owner</u> within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the <u>Construction Manager and Owner</u> other party to investigate the matter.

§ 10.2.8.1The Owner, upon acceptance of the Work, will provide and maintain fire extinguishers on the site for the protection of the new and/or altered construction. Any other special precautions for fire protection necessary for the execution of a Contractor's Work shall be the responsibility of the Contractor requiring same and the cost of such precautions shall be paid for by that Contractor. The Contractor is in no way relieved of its responsibility to abide by the OSHA regulations and for recording and registering accidents by reporting of accidents to the Construction Manager, Architect and to the Owner.

§ 10.2.9 The Contractor shall promptly report in writing to the Owner, Construction Manager and Architect all accidents arising out of or in connection with the Work which cause death, person injury, or property damage, giving full details and statements or any witnesses. In addition, if death, serious personal injuries, or serious property damages re caused, the accident shall be reported immediately by telephone or messenger to the Owner and the Construction Manager.

§ 10.2.10 The Contractor solely assumes the following distinct and several risks whether said risks arise from acts or omissions, whether supervisory or otherwise, of the Owner, of the Construction Manager, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the prosecution of the Work, whether said risks are within or beyond the control of the Contractor and whether said risks involve any legal duty, primary or otherwise, imposed upon the Owner or Construction Manager, excepting only risks which arise from fault designs as shown by the plans and specifications or from affirmative acts of the Owner or the Owner's members, officers, representatives or employees committed with intent to cause the loss, damage or injuries hereinafter set forth:

- .1 The risk of loss or damage, includes direct or indirect damage or loss, of whatever nature to the Work or to any plant, equipment, tools, materials or property furnished, used, installed or received by the Owner, the Construction Manager, the Contractor or any Subcontractor, materialmen or workmen performing services or furnishing materials for the Work. The Contractor shall bear said risk of loss or damage until Final Acceptance of the Work by the Owner or until completion or removal of said plant, equipment, tools, materials or property from the Site and the vicinity thereof, whichever event occurs last. In the event of said loss or damage, the Contractor immediately shall repair, replace or make good any said loss or damage.
- .2 The risk of claims, just or unjust, by third persons against the Contractor or the Owner, the Architect and the Construction Manager on account of wrongful death, bodily injuries and property damage, direct or consequential, loss or damage of any kind whatsoever arising or alleged to arise out of or as a result of or in connection with the performance by the Contractor of the Work, whether actually caused by or resulting from the performance of the Work, or out of or in connection with the Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained prior to the Final Acceptance of the Work. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained prior to the Final Acceptance of the work. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained prior to the Final Acceptance of the work. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained prior to the Final Acceptance of the work. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained resulting from the Contractor's negligence or alleged negligence which is discovered, appears, or is manifested after acceptance by the Owner.
- .3 The Contractor assumes entire responsibility and liability for any and all damage or injury of any kind or nature whatsoever, including death resulting therefrom, to all person, whether employees of the Contractor or otherwise, and to all property, caused by, resulting from, arising out of, or occurring in connection with the execution of the Work. If any person shall make said claim for any damage or injury, including death resulting therefrom, or any alleged breach of any statutory duty or obligation on the part of the Owner, the Architect, the Construction Manager, servants and employees, the Contractor shall assume the defense and pay on behalf of the Owner, the Architect, the Construction Manager or or Construction Manager may sustain as the result of any claim. The Contractor agrees to assume, and pay on behalf of the Owner, the Architect, and Construction

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Manager, servants and employees, the defense of any action at law or equity which may be brought against the Owner, the Architect and the Construction Manager, servants and employees. The assumption of defense and liability by the Contractor include, but is not limited to, the amount of any legal fees associated with defending, all costs of investigation, expert evaluation and any other costs including any judgment or interest or penalty that may be entered against the Owner, the Architect and the Construction Manager, servants and employees, in any said action.

§ 10.2.11 Title to all completed or partially completed work at the job site, and to all materials delivered to and stored at said job site which are intended to become a part of the complete work covered by the Contract, shall be in the name of the Owner. Notwithstanding the foregoing, and prior to acceptance of the complete work by the Owner, the Contractor shall be liable for all loss of or damage to said completed work, partially completed work, materials furnished by the Contractor, and materials or equipment, furnished by others, the custody of which has been given to the Contractor, arising from any cause other than those against which the Owner herein undertakes to carry insurance. In the event of loss or damage from cause other than those against which the Owner undertakes to carry insurance, the Contractor shall replace or repair the said work or materials at his own cost and expense.

§ 10.2.12 The Contractor shall sustain any loss or damage arising from the nature of the work to be done under this Contract or from any unforeseen or unusual obstructions or difficulties which may be encountered in prosecuting the work or from the actions of the elements including water, wind and frost. The Contractor shall maintain suitable adequate safeguards to protect all property and personnel, public or private.

§ 10.2.12.1 The Contractor's obligations under this Article shall not be deemed waived, limited or discharge by the enumeration or procurement of any insurance for liability for damages. The Contractor shall notify its insurance carrier within twenty-four (24) hours after receiving a notice of loss or damage or claim from the Owner or Construction Manager. The Contractor shall make a claim on its insurer specially under the provisions of the contractual liability overages and any other overages afforded the Owner or the Construction Manager including those of being an additional insured where applicable.

§ 10.2.13 Smoking and other tobacco use, alcoholic beverages and controlled substances are expressly prohibited on all District properties. Smoking is also prohibited within 100 feet of the boundary of the property of an elementary or secondary school. No reporting to work or being at work impaired by alcohol or controlled substances allowed. The Contractor bears the responsibility of determining if its, or its Subcontractor's employees are impaired which would jeopardize the safety of the public, the employees of other Contractors and their Subcontractors, the Owner, Architect and Construction Manager. All persons representing Contractors, Subcontractors or suppliers shall wear shirts, long pants and other proper attire while on District property. All persons representing Contractors, Subcontractors or suppliers shall conduct themselves in a manner consistent with the rules and policies of the School District while on District property or otherwise representing this Project. All Contractors, subcontractors, suppliers and their employees must refrain from conversing with school personnel and students. Any construction employees found doing so will be removed from the site. NO COMMUNICATION BETWEEN WORKERS AND STUDENTS WILL BE TOLERATED. All Contractors, subcontractors, suppliers, and their employees must refrain from using indecent language - any doing so will be removed from the site. Artwork and decoration found on vehicles belonging to Contractor's or Subcontractor's employees parked on or near the school property which contain indecent language, or pictures or symbols that foreseeably could cause a disruption to the educational environment, shall either be covered or removed from the location. The use of radios, tape players, and the like is prohibited within the Project site

§ 10.2.14 Identification Badges: If required by Owner, Contractor will be provided with one badge for each of their field personnel and workmen and shall follow Construction Manager's or Owner's instructions regarding registration and photo ID issuance upon beginning Work on site. All workmen shall display the badge at all times on site. Replacement of badges will occur for a fee. Failure to wear identification badge at all times will result in the immediate removal from the jobsite

§ 10.2.15 All crane picks, material delivery, etc. must be coordinated so as not to lift over any occupied area of the building. If necessary, this work shall be done on off hours to ensure the safety of the building occupants. Crane location must be carefully chosen to ensure the safety of building occupants. Also, Contractor must provide all engineering for crane sizing and sub-base platforms if necessary.

§ 10.2.16 When all or a portion of the Work is suspended for any reason, the Contractor shall securely fasten down

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all coverings and protect the Work, as necessary, from injury by any cause; further, Contractor, in connection with its performance of the Work or otherwise, shall not interfere in any manner with the operation of any business adjacent to the Project site including, without implied limitation, any interference with traffic, access or egress, parking and cleanliness. The Contractor shall protect and cause its Subcontractors to protect all work from damage in the event of temporary suspension of the Work.

§ 10.2.17 The Contractor shall take all necessary precautions to insure against fire during construction and be responsible to ensure that the area within Contract limits is kept orderly and clean and that combustible rubbish shall be stored on the site in such a manner and at such locations as designated by Owner to:

- (i) provide and maintain adequate fire protection. The fire protection shall be adequate at all times, and shall be subject to applicable codes and regulations.
- (ii) Comply with regulations, OSHA standards, and codes of local Fire Marshall, agencies, and departments having jurisdictions.

§ 10.2.18 The Contractor shall be required to keep fire alarm operational at all times or provide fire watch approved by Fire Marshal.

§ 10.2.19 The Contractor shall at all times provide the proper housekeeping to minimize potential fire hazards and shall provide approved spark arresters on all steam engines, internal combustion engines and flues.

§ 10.2.20 No fires shall be built on the premises nor shall open flame devices of any kind be employed within the building except for field welding with supervised fire watch.

§ 10.2.21 Free access to fire hydrants and standpipe connections shall be maintained at all times during construction operations, and portable fire extinguishers shall be provided by the Contractor and made conveniently available throughout the construction site. The Contractor shall notify its employees and subcontractors of the location of the nearest fire alarm box at all locations where the work is in progress.

§ 10.2.22 From the commencement to the completion of the Project, the Contractor shall keep the parts of the work and the buildings free from accumulation of water no matter what the source or cause of water.

§ 10.3 Hazardous Materials

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

§ 10.3.2 Upon receipt of the Contractor's notice regarding hazardous materials or substances not addressed in the <u>Contract Documents</u>, 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, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager and the Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor <u>and</u>, Subcontractors, <u>Construction Manager</u>, <u>Architect</u>, and their consultants, and agents and employees of any of them

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from and against claims, damages, losses, and expenses, including but not limited to <u>reasonable</u> attorneys' fees, arising out of or resulting from performance of the Work in the affected area <u>of hazardous materials or substances</u> <u>not addressed in the Contract Documents</u> if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

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

§ 10.3.5 To the fullest extent permitted by law, Tthe Contractor shall reimburse indemnify the Owner from and against claims, damages, losses, for the cost and expense, including but not limited to reasonable attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder), the Owner incurs arising out of or resulting from (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except, in both instances, to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall, to the fullest extent permitted by law, -reimburse the Contractor for all cost and expense thereby incurred, except to the extent that the cost and expense are due to the Contractor's fault or negligence.

§ 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 Insurance and Bonds

§ 11.1.1 § 11.1.1 The Contractor shall obtain, pay for and keep in full force and effect during the entire term of this Contract, and during the performance, final completion and acceptance of any Work, and after the term of this Contract (as may be specified herein) insurance, in a company or companies lawfully licensed to do business in the jurisdiction in which the Project is located, as designated by this Article 11 and any other insurance required by applicable law, regulations, or orders of state, municipality or other entity having jurisdiction over the Work or the Project. Contractor shall not take any action, or omit to take any action that would suspend or invalidate any of the required coverages during the time period such coverages are required to be in effect.

<u>§ 11.1.1.1 Workers' Compensation.</u> and any other federal and/or state coverages as appropriate, including but not limited to: Occupational Disease Benefits, Voluntary Compensation, and Disability Benefits, for not less than the statutory requirements, and if applicable an "Other States Endorsement"; and

Employer's Liability Insurance with limits not less than the statutory requirements or \$1,000,000 (each accident), \$1,000,000 (disease policy limit), and \$1,000,000 (disease, each employee), whichever is greater. Proof of coverage must be on the approved specific form, as required by the New York State Workers' Compensation Board. ACORD certificates are not acceptable.

<u>§ 11.1.1.2 Commercial General Liability Insurance is to be provided under the Insurance Service Office's (ISO)</u> most current form, on a project specific basis, with limits not less than the following required limits:

Each Occurrence:	\$2,000,000
General Aggregate (per project):	\$4,000,000
Products and Completed/Operations:	\$4,000,000
Personal & Advertising Injury:	\$2,000,000

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Fire Damage (any one fire):	\$ 300,000
Medical Expense (any one person):	\$ 10,000

Such insurance shall include the following coverages:

- claims for damages because of bodily injury, occupational sickness or disease, or death; (i)
- claims for damages insured by usual personal injury liability coverage; (ii)
- (iii) claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- (iv) premises operations;
- (v) product liability and completed operations, and the policy shall specifically include coverage for two (2) years of extended completed operations coverage, which will commence immediately following the expiration date of the Commercial General Liability policy;
- (vi) owners protective:
- (vii) contractors protective;
- (viii) contractual liability covering liabilities assumed under the Contract (including the tort liability of another assumed in a contract), and including, coverage for claims arising out of construction or demolition operations when working within 50 feet of railroad track;
- personal injury and advertising injury liability; (ix)
- extended bodily injury coverage with respect to bodily injury resulting from the use of (x) reasonable force to protect persons or property;
- medical payments coverage; (xi)
- (xii) broad form property damage liability coverage, including coverage for completed operations;
- (xiii) explosion, collapse, and underground property damage (XCU);
- (xiv) construction means and methods;
- (xv) independent contractors;
- (xvi) Owner and other's identified herein as additional insured to be specifically evidenced as additional insureds via ISO Endorsements GC 2010 and CG 2037.

<u>§11.1.1.3</u> Comprehensive Auto Liability Insurance, including uninsured/underinsured and medical payment protection, and including all owned, non-owned and hired autos, with a limit of liability of not less than \$1,000,000 each occurrence (combined single limit for personal injury, including bodily injury or death, and property damage).

§11.1.1.4 Umbrella/Excess Policy, providing excess coverage in excess of the limits for the insurance coverages required by Sections 11.1.1, 11.1.1.2, and 11.1.1.3 above, with such excess/umbrella coverage being at least as broad as each and every one of the underlying policies), with the provision that coverage shall extend for a period of at least two (2) years from the date of final completion and acceptance by Owner of all Work; with a minimum limit not less than \$5,000,000 per occurrence/annual general aggregate. In the event the underlying policies have different renewal dates, the Contractor shall ensure that the underlying policies are maintained for the term specified in this Contract.

§ 11.1.2 All insurance shall be written on an occurrence basis. A copy of the additional insured endorsement shall be attached.

§ 11.1.3 Contractor's insurance requirements shall be provided by an insurance carrier licensed to do business in the State of New York and have an A.M. Best Rating of A(-)8 or better as determine in the most recent A.M. Best Publication, or as may otherwise be agreed by Owner.

§ 11.1.4 Insurance coverage to be provided by the Contractor shall state that the Contractor's coverage shall be "primary" and non-contributing to any insurances (or self-insurance), including any deductible, maintained by, or provided to Owner or the other Additional Insureds; and shall contain a Waiver of Subrogation in favor of Owner and the other Additional Insureds, so that in no event shall the insurance carriers have any right of recovery against Owner, the other Additional Insureds, or the agents or employees or either of them; and shall contain a separation of insured provision (severability of interest clause). If the Owner or another Additional Insured has other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis.

§ 11.1.5 In the event that any of the insurance coverage to be provided by the Contractor contains a deductible or self-insured retention, the Contractor shall indemnify and hold the Owner, and any Additional Insured harmless

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from the payment of such deductible, which deductible shall in all circumstances remain the sole obligation and expense of the Contractor.

§ 11.1.6 The Contractor shall require all Subcontractors to carry the same insurance coverage's and limits of liability as set forth herein and adjusted to the nature of Subcontractors' operations and submit same to the Owner through the Construction Manager for approval prior to start of any Work (notwithstanding the preceding, without written agreement by Owner, Subcontractors' limits of liability coverage shall not, for any reason whatsoever, be less than \$2,000,000 per occurrence and in the aggregate). In the event Contractor fails to obtain the required certificates of insurance from Subcontractor and prove them to Construction Manager and a claim is made or suffered, the Contractor shall, to the fullest extent permitted by law, indemnify, defend, and hold harmless the Owner and the Additional Insureds from any and all claims for which the required insurance would have provided coverage. This indemnity obligation is in addition to any other indemnity obligation provided in the Contract Documents and shall survive the term or earlier termination of the Contract.

§ 11.1.7 Environmental Impairment Liability (Pollution Insurance) (EIL): All Contractors and Subcontractors involved with the removal and/or abatement of pollutants (including but not limited to asbestos abatement contractors, lead abatement contractors, roofing contractors, tank removal contractors) are required to maintain a minimum of \$2,000,000 EIL coverage. Owner and all other parties required by this Contract to be Additional Insured and all others identified by Owner as such, shall be included as Additional Insured on any EIL policy on a primary and non-contributing basis.

§ 11.1.8 The Contractor assumes responsibility for all injury or destruction of the Contractor's and Subcontractors' materials, tools, machinery, equipment, appliances, shoring, scaffolding, and personal property of Contractor's and Subcontractors' employees from whatever cause arises. Any policy of insurance secured covering the Contractor's or Subcontractors' property leased or hired by them and any policy of insurance covering the Contractor or Subcontractors against physical loss or damage to such property shall include an endorsement waiving the right of subrogation against the Owner for any loss or damage to such property.

§ 11.1.9 Additional Insured/Certificate Holder. The Contractor shall cause the commercial liability and other coverage required by the Contract to include the following as Additional Insureds:

- (i) Newburgh Enlarged City School District;
- (ii) Members of the Board of the Newburgh Enlarged City School District;
- (iii) The Palombo Group
- (iv) CPL Architects, Engineers, Landscape Architect and Surveyor, D.P.C., d/b/a CPL; and

(v) Any directors, partners, members, shareholders, officers, employees, successors, assigns, heirs, affiliates, agents, and representatives of each and any of the foregoing.

Contractor shall also add any other entities and/or individuals as may be required by Owner as Additional Insured.

The certificate holder shall be Newburgh Enlarged City School District unless Owner requires otherwise.

<u>Contractor shall provide an Additional Insured endorsement that expressly names each of the above identified</u> <u>Additional Insureds (non-blanket) and shall ensure that the endorsement does not include language that requires an</u> <u>Additional Insured to have a written contract with the named insured for coverage to apply.</u>

Additional insured status shall be provided by standard or other endorsements that extend coverage to the District/BOCES for on-going operations (CG 20 38) and products and completed operations (CG 20 37). The decision to accept an endorsement rest solely with the District/BOCES. A completed copy of the endorsements must be attached to the Certificate of Insurance

§ 11.1.10 Certificates of insurance acceptable to the Construction Manager and Owner shall be provided to the Construction Manager and filed with the Owner prior to commencement of the Work. A fully completed New York Construction Certificate of Liability Insurance Addendum (ACORD 855 2014/15) must be included with the certificates of insurance. The certificates and the insurance policies shall contain a provision that coverages afforded under the policies will not be allowed to be materially changed or canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to the Owner via Certified/Registered Mail. If any of the foregoing insurance coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment. 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 in accordance with the Contractor's information and belief.

§ 11.1.11 The Contractor acknowledges that its failure to obtain or keep current the required insurance coverage shall constitute a material breach of contract and subjects the Contractor to liability for damages the Owner (or others, including without limitation the other Additional Insured) sustains as a result of such breach. In addition, the Contractor shall be responsible to the fullest extent permitted by law for the indemnification to the Owner and all Additional Insured of any and all costs associated with such lapse in coverage, including but not limited to reasonable attorneys' fees (and this indemnification obligation shall survive the term or earlier termination of the Contract).

§ 11.1.12 The amount of insurance required by the Contract shall not be construed to be a limitation of the liability of on the part of the Contractor or any of its Subcontractors.

§ 11.1.13 No act or omission of any insurance agent, broker, or insurance company representative shall relieve Contractor of any of its obligations under this Contract.

§ 11.1.14 Notwithstanding anything in Section 11.3 and its subsections to the contrary, the Contractor shall provide insurance coverage for portions of the Work stored off the site, in transit, and stored on the site but not incorporated into the Work on a full replacement cost basis. The Contractor is responsible for all deductible amounts. 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 such insurance as will protect the Contractor from claims set forth below (and such insurance shall be from a company that is A rated or better by A.M. Best Company) 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;

Claims for damages because of bodily injury, sickness or disease, or death of any person other than the .3 Contractor's employee;

Claims for damages insured by usual personal injury liability coverage; .4

Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, -5including loss of use resulting therefrom;

Claims for damages because of bodily injury, death or a person or property damage arising -6out of ownership, maintenance or use of a motor vehicle.

Claims for bodily injury or property damage arising out of completed operations; and .7

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

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

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located. Insurance required by Section 11.1.1 or as described in the Agreement or other corresponding Exhibit setting forth the specific insurance requirements shall be written for not less than limits of liability specified by the Owner or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claimsmade basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

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§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished. Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage 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 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within not less than twenty (20) three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.1.5 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.

§ 11.1.6 INSURANCE REQUIREMENTS

INSERT HERE OR IN OWNER CONTRACTOR AGREEMENT.

§ 11.1.7 PERFORMANCE BOND AND PAYMENT BOND

IF BOND INFORMATION IS TO BE FOUND ELSEWHERE (OWNER CONTRACTOR AGREEMENT OR INSTRUCTIONS TO BIDDERS), OR NOT REQUIRED MODIFY THIS SECTION

§ 11.1.7.1 The Contractor shall furnish a Performance Bond and Labor and Material Payment Bond meeting all statutory requirements of the jurisdiction where the Project is located, in form and substance satisfactory to the Owner and, without limitation, complying with the following specific requirements:

Except as otherwise required by statute, the form and substance of such bonds shall be satisfactory to the .1 Owner in the Owner's sole judgment.

Bonds shall be executed by a responsible surety licensed in the jurisdiction where the Project is located, .2 with a Best's rating of no less than A/XII, and shall remain in effect for a period not less than two (2) years following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer.

The Performance Bond and the Labor and Material Payment Bond shall each be in an amount equal to the .3 Contract Sum and all subsequent increases.

.4____ The Contractor shall require the attorney in fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power of attorney indicating the monetary limit of such power.

Every Bond under this Subparagraph 11.4.1 must display the Surety's Bond Number. A rider including the -5following provisions shall be attached to each Bond:

The Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change or other modification of the Contract Documents. Any addition, alteration, change, extension of time, or other modification of the Contract Document, or a forbearance on the part of either the Owner or the Contractor to the other, shall not release the Surety of its obligations hereunder, and notice to the Surety of such matters is hereby waived. The Surety agrees that it is obligated under the bonds to any successor, grantee, or assignce of the Owner.

Bonds shall be written on AIA Document 312. .6—

.7___ If the Surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of

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paragraph 11.4.1, Contractor shall within ten (10) days thereafter substitute another Bond and Surety, both of which must be acceptable to the Owner.

§ 11.2 Owner's Insurance

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

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

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

§ 11.3 Property Insurance

§ 11.3.1 Unless otherwise provided, the Owner 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 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, until final payment has been made as provided in the Contract Documents or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 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 the Architect's, Contractor's, and Construction Manager's services and expenses required as a result of such insured loss.

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§ 11.3.1.2 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles, unless the underlying loss is caused in whole or in part by Contractor or any of its Subcontractors or anyone for whom either of them are responsible, then, the Contractor shall pay such costs of deductibles.

§ 11.3.2 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.

§ 11.3.3 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.

§ 11.3.4 If during the Project construction period the Owner insures properties, real or personal or both, adjoining 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 11.3.5 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.

§ 11.3.5 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, subsubcontractors, agents, and employees, each of the other; (2) the Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Multiple Prime Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (5) 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 those losses are covered by property insurance obtained by the Owner pursuant to this Section 11.3 or other property insurance maintained by Owner applicable to the Work required by the Agreement or other property insurance applicable to the Project, except such rights as the Owner and Contractor they may have to the proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Construction Manager, Construction Manager's consultants, Architect's consultants, Owner's 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 written waivers each in favor of the other parties enumerated hereinindividuals and entities identified above from the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, other Contractors, Separate Contractors, subcontractors, and sub-subcontractors. 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. To the extent that a waiver of subrogation is unavailable to the Owner, and the absence of such right of subrogation or the Owner's giving such a waiver would constitute a breach of its insurance policy; then as to the Owner this Section 11.3.5 shall be of no force or effect and no such waiver of subrogation shall be required of Owner. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.26 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 11.3.7. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner. If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

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§ 11.3.7 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.

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

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

§ 11.5 Adjustment and Settlement of Insured Loss

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

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

ARTICLE 11A BONDS

§ 11A.1 PERFORMANCE BOND AND PAYMENT BOND

§ 11A.1.1The Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond each to be in an amount equal to one hundred percent (100%) of the Contract Sum meeting all statutory requirements of the State of New York, in form and substance satisfactory to the Owner and, without limitation, complying with the following specific requirements:

- .1 Except as otherwise required by statute, the form and substance of such bonds shall be satisfactory to the Owner in the Owner's sole judgment;
- .2 Bonds shall be executed by a responsible surety licensed in the jurisdiction of the Work with an AM Best's rating of no less than A/XII and shall remain in effect for a period not less than two (2) years following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer;
- .3 The Performance Bond and the Labor and Material Payment Bond shall each be in an amount equal to the Contract Sum;
- .4 The Contractor shall require the attorney in fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power of attorney indicating the monetary limit of such power;
- .5 Every Bond under this Section 11.5.1 must display the Surety's Bond Number. A rider including the following provisions shall be attached to each Bond:

(1) Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change, or other modification of the Contract Documents. Such addition, alteration, change, extension of time, or other modification of the Contract Documents, or a forbearance on

the part of either the Owner or the Contractor to the other, shall not release the Surety of its obligations hereunder and notice to the Surety of such matters is hereby waived.

(2) Surety further agrees that in event of any default by the Owner in the performance of the Owner's obligations to the Contractor under the Contract, the Contractor or Surety shall cause written notice of such default (specifying said default in detail) to be given to the Owner, and the Owner shall have thirty (30) days from time after receipt of such notice within which to cure such default, or such additional reasonable period of time as may be required if the nature of such default is such that it cannot be cured within thirty (30) days. Such Notice of Default shall be sent by certified or registered U.S. Mail, return receipt requested, first class postage prepaid, to the Construction Manager, Architect and the Owner.

(3) Notwithstanding anything in the Bond to the contrary, the Performance Bond shall not contain a condition that any meeting must be scheduled among Owner, Contractor and its surety, or any combination of them, prior to Owner declaring Contractor in default or prior to Owner terminating Contractor's Contract. Any such language in a Performance Bond shall be null, void and unenforceable.

(4) Surety and Contractor shall be liable for the additional costs and expenses incurred by the Owner in relation to the default of the Contractor including but not limited to architectural, engineering and/or consultants fees and disbursements.

§ 11A.1.2 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 permit a copy to be made.

§ 11A.1.3 The Contractor shall deliver the required bonds to the Owner prior to beginning construction activity at the site, but no later than seven (7) days after execution of the Contract. Said bonds shall be issued on form AIA Document A312.

§ 11A.1.4 The Owner may, in the Owner's sole discretion and without prior notice to the Contractor, inform surety of the progress of the Contractor's Work and obtain consents as necessary to protect the Owner's rights, interest, privileges and benefits under and pursuant to any bond issued in connection with the Contractor's Work.

§ 11A.1.5 If the surety on any Bond furnished by the Contractor is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of this Article, the Contractor shall within ten (10) days thereafter substitute another Performance and Payment Bond and surety, both of which must be acceptable to the Owner.

§ 11A.1.6 The Contractor shall keep the surety informed of the progress of the Work, and, where necessary, obtain the surety's consent to, or waiver of: (1) notice of changes in the Work; (2) request for reduction or release of retention; (3) request for final payment; and (4) any other material required by the surety. The Owner, Construction Manager, and Architect shall be notified by the Contractor, in writing, of all communications with the surety. The Owner may, in the Owner's sole discretion, inform surety of the progress of the Work and obtain consents as necessary to protect the Owner's rights, interest, privileges and benefits under and pursuant to any bond issued in connection with the Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK § 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their 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 Construction Manager or Architect has not specifically requested to examine prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

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§ 12.2 Correction of Work § 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion, and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and 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 (<u>1</u>) 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 Article 9, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.45. The right of the Owner to require Contractor to correct Work not in accordance with the requirements of the Contract Documents pursuant to this paragraph shall not give rise to any duty on the part of the Owner to exercise this right for its benefit or the benefit of the Contractor or any other person or entity.

§ 12.2.2. Without limitation to Section 12.2.2.1, the Contractor shall also furnish maintenance and 24-hour call back service for the equipment provided by it for a period of three (3) months after final completion and acceptance of the Work. This Work shall include all necessary adjustments, greasing, oiling, supplies, and parts to keep any supplied/installed equipment in proper operation except such parts made necessary by misuse, accidents or negligence not caused by the Contractor or any of its Subcontractors.

§ 12.2.2.3. In the judgment of the Owner should any material, equipment or systems require corrective work because of defects in material or workmanship within the (2) Two-year warranty period, or extended warranty periods, the Contractor shall complete all required corrective work within forty-five (45) days of notice. In the event the Contractor does not, in accordance with the terms and provisions of the Contract, complete all corrective work within forty-five (45) days, or comply with and fulfill his warranty obligations, the Owner will notify the bonding company to have such work and/or obligations performed at no additional cost to the Owner at the expense of the bonding company and/or the Contractor. The obligations of the Contractor under the terms and provisions of the Contract shall not however be limited to the surety retained by the Owner pursuant to the provisions of the Contract.

§ 12.2.2.42 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.

§ 12.2.2.53 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.

§ 12.2.2.63 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.

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

§ 12.2.2.58 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

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may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4. The parties expressly agree that any claim, dispute, or other controversy of any nature arising out of the Contract or performance of the Work shall be commenced and maintained in New York State Supreme Court located in Orange County, New York.

§ 13.1.1 Historical lack of enforcement of any law, local or otherwise, shall not constitute a waiver of Contractor's responsibility for compliance with such law in a manner consistent with the Contract Documents unless and until the Contractor has received written consent for the waiver of such compliance from the Owner and the agency responsible for the law enforcement. In all operations under the Contract, the Contractor agrees that it will comply with provisions of all State and Federal Laws (including OSHA) and all local ordinances which may affect such operations.

§ 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 <u>in part or</u> as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract. <u>The Contractor shall not assign any monies due or to become due to him under the Contract without the previous consent of the Owner.</u>

§ 13.2.2 The Owner may, without consent of the Contractor, assign <u>if otherwise allowed under applicable law and</u> the Contract to a lender providing construction financing for the Project, if the <u>assignee</u>lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Written Notice

§ 13.3.1 All notices and other communications required to be in writing (including without limitation all notices relating to Claims, defaults or termination) shall be deemed to have been duly given or delivered: (i) if delivered by hand to the addresses below against a signed receipt, upon delivery; (ii) if deposited with a nationally recognized and reputable overnight delivery service for overnight delivery to the addresses below, upon one (1) day following deposit with such overnight delivery service (with proof tender); or (iii) if by certified mail, return receipt requested, postage prepaid addressed to the addresses below; upon three (3) business days after it is posted with the United States Postal Service. If the delivery of notice above shall fall on a non-business day or holiday, then delivery of the notice shall be deemed to have been made on the next following business day. All such notices shall be delivered to:

<u>(i)</u>	if to Owner, addressed to:	ļι
	Newburgh Enlarged City School District	L
	<u>124 Grand St.</u>	
	Newburgh, NY 12550	
	Attn: Mr. Roger Ramjug, Capital Projects Administrator	
	with a copy to Construction Manager:	
	THE PALOMBO GROUP INC.	
	22 Noxon St.	
	Poughkeepsie, NY 12601	
	Att: Mr. Luis Rodriguez	

and

(ii) if to Contractor, addressed to:

[TO BE INCLUDED]

If notice is tendered under the provisions of this Section 13.3 and is refused by the intended recipient of the notice, the notice shall nonetheless be considered to have been given and shall be effective as set forth above.

Either party may designate from time to time, by appropriate written notice to the other parties

§ 13.43 Rights and Remedies

§ 13.43.1 Except as expressly provided in the Contract Documents, Deduties and obligations imposed by the Contract Documents on Contractor and rights and remedies available to Owner thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law or in equity, or by other agreement, and such rights and remedies shall survive acceptance of the Work and/or termination of the Contract Documents.

§ 13.<u>4</u>3.2 No action or failure to act by the Owner, Construction Manager, <u>or</u> Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.54 Tests and Inspections

§ 13.54.1 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 Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.54.2 If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.54.1, the Construction Manager and 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 Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.54.3, shall be at the Owner's expense.

§ 13.54.3 If procedures for testing, inspection, or approval under Sections 13.4<u>5</u>.1 and 13.4<u>5</u>.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 Construction Manager's and Architect's services and expenses, and also including Owner's attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder) arising out of or related to same shall be at the Contractor's expense. The Contractor agrees that the cost of testing services required for the convenience of the Contractor in his scheduling and performance of the Work, and the cost of testing services relating to remedial operations performed to correct deficiencies in the Work shall be borne by the Contractor.

§ 13.<u>5</u>4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

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§ 13.<u>5</u>4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or Architect will do so <u>in a reasonably</u> promptly manner and, where practicable, at the normal place of testing.

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

§ 13.5.7 Upon request the Contractor shall deliver test samples of any of the materials specified in these specifications to an independent testing agency. The Owner shall pay for the test of samples, which are found to conform to the specifications. The Contractor shall pay for the tests of samples, which do not conform to the specifications. This shall not relieve the Contractor of his obligations to perform specific tests described elsewhere in these specifications.

§ 13.5.8 Where the specifications require part of the work to be specially tested and approved, it shall not be tested or covered up without timely notice thereof or consent thereto. Should any part of the work be covered up without notice, approval or consent, such part of the work shall be uncovered for examination at the Contractor's expense if the Owner shall so require.

§ 13.5.9 Where operating tests are specified, the Contractor shall test the work as it progresses, on his own account, and shall make satisfactory preliminary tests in all cases before applying for official tests.

§ 13.5.10 Tests shall be made in the manner specified, for the different branches of the work. Each test shall be made on the entire system for which such test is required, wherever practical. In case it is necessary to test portions of the work independently, the Contractor shall do so.

§ 13.5.11 Should defects appear, they shall be corrected by the Contractor and the test repeated until the installation is acceptable.

§ 13.5.12 When notice of tests is to be given to the Architect, it shall also be given to the Construction Manager.

§ 13.65 Interest

Payments due and unpaid under the Contract Documents shall bear interest <u>in compliance with applicable law.from</u> the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 Time Limits on Contractor's Claims

The Contractor shall commence all Claims and causes of action, including without limitation all notice requirements relating to Claims, whether in contract, tort, or otherwise, against the Owner arising out of or related to the Contract in strict accordance with the requirements of the Contract Documents (including without limitation strict compliance with all conditions precedent to the making of such Claims as required by the Contract Documents) and as required by applicable law, including without limitation within all applicable time periods specified by applicable law. The Contractor waives all claims and causes of action not commenced in accordance with this Section 13.7. Notwithstanding anything herein or elsewhere in the Contract Documents to the contrary, Contractor shall absolutely and strictly comply with New York State Education Law §3813.

§ 13.8 The Owner shall not be responsible for damages or for loss of anticipated profits or any other damages whatsoever on Work not performed on account of any termination of the Contractor by the Owner or by virtue of the Owner's exercise of its right to take over the Contractor's Work pursuant to this Contract.

§ 13.9 The Owner shall not be liable to the Contractor for punitive damages on account of its termination of the Contractor or any other alleged breach of the Contract between Owner and the Contractor and the Contractor hereby expressly waives its right to Claim such damages against the Owner.

§ 13.10 The Contractor hereby expressly waives any rights it may have in law or in equity to lost bonding capacity as a result of any of the actions of the Owner, the Architect or the Construction Manager taken in connection with the Contractor's Work on the Project.

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§ 13.11 The Contractor agrees and acknowledges that payments for the Work have been obtained through obligations or bonds which have been sold after public referendum. In the event the Work is suspended or canceled as a result of the order of any court, agency, department, entity or individual having jurisdiction, or in the event the Work is suspended or canceled due to the fact that a court, agency, department, entity or individual having jurisdiction has issued an order, the result of which is that the aforesaid obligations or bonds are no longer available for payment for the Work, the Contractor expressly agrees that it shall be solely entitled to payment for Work accomplished until a notice of suspension or cancellation is served upon it. The Contractor expressly waives any and all rights to institute an action, Claim, cause of action or similar for any damages it may suffer as a result of the suspension or cancellation of the Work and/or its Contract pursuant to this section.

§ 13.12 It is the intent and understanding of the parties to this Contract that each and every provision of law required to be inserted in this Contract shall be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is to be deemed to be inserted herein, and if, through mistake or otherwise, any such provision is not inserted, or is not inserted in correct form, then this Contract shall forthwith be deemed amended by such insertion so as to comply strictly with the law.

§ 13.13 Liens. At all times, Contractor shall fully and promptly pay and discharge any and all commitments and claims and to the fullest extent permitted by law, wholly defend, protect, indemnify and hold harmless Owner (and its board members, officers, directors, agents, servants, employees) from and against any and all mechanics' or materialmens' liens or claims by Subcontractors or others in connection with the Work and against all damages, liability, cost and expense arising out of or related thereto (whether direct or consequential notwithstanding any provisions of the Contract to the contrary) and including all reasonable attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder). In connection with the foregoing, all mechanics' or materialmens' liens which relate to the Work of this Contract shall be removed, discharged or bonded by Contractor within thirty (30) days of notice from Owner. If Contractor fails to commence the process to discharge or remove the lien within 5 business days after notice of the lien, and notify Owner thereof in writing, or if Contractor thereafter fails to diligently prosecute such discharge or removal to the satisfaction of Owner in its sole discretion, Owner shall, without limitation to Contractor's full indemnification obligation under this Section, have the right to remove, discharge or bond such lien and deduct the cost thereof (including the amount paid or bonded plus reasonable attorneys' fees and disbursements) from any payment due the Contractor.

§ 13.14 No assignment, transfer, conveyance, subletting or other disposition of all or any part of the Contract, or of any of the moneys due or to become due thereunder, or of any right, title or interest therein by Contractor to any person or entity will be permitted or allowed without the previous consent, in writing, of the Owner.

§ 13.15 There are no specific participation goals to be met. However, the Contractor will make good faith effort to solicit subcontractors and material suppliers that are Minority Owned Business Enterprises, Women Owned Business Enterprises and Service-Disabled Veteran Owned Businesses certified in New York State. Evidence of good faith efforts is required.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract <u>in the manner provided herein below</u> if the Work is stopped for a period of <u>ninety (390)</u> consecutive days through no act or fault of the Contractor, a Subsubcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped; or
- .3 Because Contractor has appropriately stopped Work pursuant to Section 9.7 of these General Conditions the Construction Manager has not certified or 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, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- 4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

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§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon <u>fourteen (14)</u> seven days' notice to the Owner, Construction Manager and Architect, terminate the Contract <u>unless (but not in the</u> instance the event in Section 14.1.2 is applicable) such reason is cured prior to the expiration of said notice period (or if such breach by its nature cannot be cured within such notice period, Owner has diligently commenced to cure such breach and in good faith continues to complete such cure), and recover from the Owner <u>only payment</u> for Work executed (, as well as reasonable including reasonable overhead and profit <u>on such Work executed</u>) through the effective date of termination in compliance with the Contract Documents (with the basis for such payment as provided in the Contract Documents), it being agreed and understood, however, that Owner shall incur no other liability to Contractor by reason of such termination, with it being further agreed and understood that the Owner shall not be responsible for or required to pay Contractor for any costs or damages for loss of anticipated overhead and/or profit on Work not performed on account of any termination described in this Section 14.1 and its subsections.

on Work not executed, and costs incurred by reason of such termination.

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

§ 14.2 Termination by the Owner for Cause

- § 14.2.1 The Owner may terminate the Contract if the Contractor
 - .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
 - .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
 - .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
 - .4 fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all of the requirements of the Contract Documents;
 - .5 fails to keep the Project free from strikes, work stoppages, slowdowns, lockouts, or other disruptive activity;
 - .6 is adjudged a bankrupt or insolvent, or makes a general assignment for the benefit of Contractor's creditors, a trustee or receiver is appointed for Contractor or for any of its property, or files a petition to take advantage of any debtor's act or to reorganize under bankruptcy or similar laws:
 - .7 refuses or fails to correct deficient Work performed by it;
 - .8 disregards the instructions of the Construction Manager, Architect or Owner (when such instructions are based on the requirements of the Contract Documents); or
 - .49 otherwise <u>does not fully comply with is guilty of substantial breach of a provision of the</u> Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, after consultation with the Construction Manager, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven three (3) 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 Take possession of materials stored off site by the Contractor;
- .32 Accept assignment of subcontracts pursuant to Section 5.4; and

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.43 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.

The notice provision in this 14.2.2 above is for informational purposes only and it is expressly agreed that Contractor shall have no right to cure.

§ 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 Construction Manager's and Architect's and other consultants' services and expenses made necessary thereby, and including Owner's attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder), and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages including Owner's attorneys' fees (and also including, without limitation, attorneys' fees and expenses incurred in any appeals, or any enforcement of the obligations under this provision, or enforcement of any judgment and collection hereunder) 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, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and tThis 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. The Contractor shall continue to prosecute that portion of its Work that has not been suspended, delayed, or interrupted, and shall properly protect and secure the portion of its Work so suspended, delayed or interrupted.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1- Adjustment of the Contract Sum shall include profit. it being expressly agreed that the Owner shall incur no liability to Contractor by reason of such suspension, delay, or interruption except that Contractor may request an extension of its time to complete its Work in accordance with this Contract Documents. 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 this Contract-; or
- Contractor waives its right to an adjustment by operation of any other provision of the Contract .3 **Documents**

§ 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. Termination shall be effective immediately upon delivery of Owner's written notice to Contractor unless specified otherwise by Owner in writing in such notice.

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

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

§ 14.4.3 If the Contractor's Work is so terminated, the Owner shall not be liable to the Contractor by reason of such termination except that the Contractor shall be entitled to payment for the Work it has properly executed though the effective date of termination in compliance with the Contract Documents, including reasonable overhead and profit on such Work executed (with the basis for such payment as provided in the Contract Documents); it being agreed

and understood, however, that Owner shall incur no other liability to Contractor by reason of such termination, with it being further agreed and understood that the Owner shall not be responsible for or required to pay Contractor for any costs or damages for loss of anticipated overhead and/or profit on Work not performed on account of any termination described in this Section 14.4 and its subsections. In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

§ 14.4.4 The Contractor shall include in each of its subcontracts a clause, similar in effect to the provisions in Paragraph 14.4, allowing the Contractor to terminate the subcontract for its sole convenience, subject only to the payment obligations set forth in Paragraph 14.4.3.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition. A "Claim" is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits Limits and other Requirements for Contractor's Notice of on Claims

It is a condition precedent to Contractor's ability to pursue any Claim that written notice of the Claim by Contractor in strict compliance with the requirements of this Section 15.1.2 must be initiated by written notice to the Owner with a copy sent to the Construction Manager and Architect,. within twenty-one (21) days after occurrence of the event giving rise to such Claim or within twenty-one (21) days after the Contractor first recognizes the condition giving rise to the Claim, whichever is later. So that the Owner can properly investigate the Claim, TIME IS EXPRESSLY OF THE ESSENCE WITH RESPECT TO CONTRACTOR'S GIVING OF NOTICE OF CLAIM TO OWNER AS PROVIDED HEREIN AS A CONDITION PRECEDENT TO ITS ABILITY TO ASSERT OR OTHERWISE PURSUE ANY CLAIM. The notice of Claim shall set forth: (1) the reasons for which the Contractor believes additional compensation will or may be due or additional time should be granted; (2) the nature of the costs involved; (3) the Contractor's plan for mitigating such costs; (4) if ascertainable, the amount of the potential Claim. For any Claim initiated after the time limit set forth in this Section 15.1.2 or otherwise not in compliance with the information required by this Section 15.1.2, Contractor shall be deemed to have expressly waived any such Claim and shall forfeit any rights that it may have pursuant to this Contract or in law or equity to ever assert or otherwise pursue such Claim. The requirements of this Section are in addition to Contractor's obligation to strictly comply with New York State Education Law §3813.

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

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

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

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§ 15.1.34 Continuing Contract Performance

§ 15.1.4.1-Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. It is understood that a violation of this provision by Contractor shall cause irreparable harm to the Owner.

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

§ 15.1.45 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.56 Claims for Additional Time

§ 15.1.<u>56.1</u> If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided <u>here</u>in <u>Section 15.1.3</u> shall be given <u>as required by Article 8 of these General Conditions</u>. 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. The Contractor shall accompany the Claim with a written analysis with a proposed revision to the Schedule illustrating the claimed influence of the basis for delay on the critical path of the Work and the applicable deadlines that may be impacted. Contractor will exercise reasonable efforts to mitigate the potential impact of any delay but shall be compensated for any costs associated therewith.

§ 15.1.5.2 No Damage for Delay: Contractor acknowledges that delays are common to construction projects of this nature, that the Drawings and Specifications and other Contract Documents for the Project may be incomplete and/or contain errors and discrepancies which will necessitate the issuance of Change Orders to correct existing deficiencies, that changes to the Drawings and Specifications often require extensive and time consuming reviews by many individuals before they may be approved or ratified, that the processing of Shop Drawings may be inordinately slow, that there may be delay, impact, hindrance or interference from other Prime Contractors or other separate contractors retained by Owner or visitors to the Project site or from directions given or not given by the Construction Manager, Owner or Architect, or any of their consultants, including scheduling and coordination of the Work, and that Contractor may encounter adverse weather conditions or force majeure events, whether or not foreseeable or anticipated (all of which shall be deemed "Contemplated Delays"). Accordingly, and notwithstanding any other provisions of this Subcontract, except to the extent expressly prohibited by law, the Contractor expressly agrees not to make and hereby waives any Claim, and contractually assumes the risk of, any and all loss and expense and damages for delay, interference, hindrance or impact to the progress of its Work, loss of productivity or efficiency, loss of profit, extended home office overhead or any increased costs (including but not limited to increased labor or material costs), for or on account of any delay, obstruction, interference or hindrance, or other impacts to the performance of its Work for any reason whatsoever, including without limitation Contemplated Delays, it being understood the risk for all loss and expense for delay having been anticipated by Contractor's execution of this Subcontract. IT IS EMPHASIZED THAT NO MONETARY RECOVERY MAY BE OBTAINED BY THE CONTRACTOR FOR ANY DELAY AGAINST THE OWNER, OR CONSTRUCTION MANAGER OR ARCHITECT BASED ON ANY REASON AND THAT THE CONTRACTOR'S SOLE REMEDY, IF APPROPRIATE, IS ADDITIONAL TIME FOR COMPLETION OF THE WORK, the amount of which shall be subject to the procedures set forth in this Contract. The intent of this section is to avoid protracted costly litigation as to whether delays, should they occur, were anticipated or unanticipated, foreseeable or unforeseeable, reasonable or unreasonable or as to whether or not they were the fault of Contractor, other Prime Contractors, Owner, Construction Manager, Architect, other contractors or their representatives. Contractor agrees that all such delays, regardless of duration, are within the contemplation of the parties. Contractor has certified that it has considered, as an experienced contractor, the risk of encountering such delays in reaching agreement with Owner on the Contract Sum for the Work.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction. <u>The time for performance of this Contract</u>, as set forth in the Construction Schedule, shall include an allowance for delays due to reasonably anticipated adverse weather for the area where the Work is located. For the purpose of establishing that abnormal

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adverse weather conditions have caused a delay, and determining the extent of delay attributed to such weather conditions, the Contractor shall furnish with its claim, National Oceanic and Atmospheric Administration (NOAA) National Weather Service records of climatic conditions during the same time interval for the previous five (5) years for the locality of the Work; the Contractor's daily job site logs/daily construction reports showing weather, job activities, and the effect of weather on the progress of the Work; and an impact schedule showing the effects of the weather event on the critical path of the Contractor's Construction Schedule. Time extension for weather delays and related impact do not entitle the Contractor to extended overhead recovery or to any other monetary compensation associated with that claim unless approved in writing by the Owner.

§ 15.1.6.3 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which have concurrent or interrelated effects on the progress of the Work.

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

- damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, .1 business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- damages incurred by the Contractor for principal office expenses including the compensation of .2 personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7-6 shall be deemed to preclude award assessment of Liquidated Delay dDamages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 The Construction Manager, Architect and/or the Owner may, but are not obligated to, notify the Surety, of the nature and/or estimated amount of any Claim that the Owner or others may have against Contractor. If such Claim relates to a possibility of a Contractor's default/termination, the Construction Manager, Architect and/or Owner may, but are not obligated to, notify the Surety and request the Surety's assistance in resolving the controversy.

§ 15.3 Litigation. See Agreement, Article 6.

Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

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

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

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data. (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, 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 file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

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

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

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

§ 15.3 Mediation

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

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

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

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

§ 15.4 Arbitration – DELETE ALL OF 15.4 IF ARBITRATION NOT SELECTED IN OWNER-CONTRACTOR AGREEMENT

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

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

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

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

§ 15.4.4 Consolidation or Joinder

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

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

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



APPENDIX "A"

PROJECT LABOR AGREEMENT

COVERING CONSTRUCTION

OF

CAPITAL CONSTRUCTION PROJECTS

NEWBURGH ENLARGED CITY SCHOOL DISTRICT

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(Pages to be verified prior to signatures)

PREAMBLE

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PROJECT LABOR AGREEMENT

PREAMBLE

WHEREAS, Newburgh Enlarged City School District ("NECSD"), desires to provide for the cost efficient, safe, quality, and timely completion of certain construction work described herein relating to the Capital Construction Projects approved by the qualified voters of NECSD on May 21, 2019 ("The Project") in a manner designed to afford the lowest reasonable costs to the NECSD, and the public it represents, and the advancement of permissible statutory objectives:

WHEREAS, NECSD engaged Arace & Company ("Arace") to undertake a study of whether the use of a Project Labor Agreement will best serve the NECSD's interest in obtaining the best work at the lowest possible price, preventing favoritism, fraud and corruption, and other considerations such as the impact of delay, the possibility of cost saving advantages, and any local history of labor unrest; and

WHEREAS, "Arace" Due Diligence Assessment of the Impacts and Implementation of a Project Labor Agreement, (the "study") dated May 20, 2020 ("Report"), concluded that use of a Project Labor Agreement would provide the NECSD with measurable economic benefits and would promote the NECSD's interest in obtaining the best work at the lowest prices as well as preventing favoritism, fraud and corruption; and

WHEREAS, NECSD has carefully reviewed and considered "Arace" Report and determined, among other things, that NECSD's interest in obtaining the best work at the lowest possible price, preventing favoritism, fraud and corruption, preventing the impact of delay, avoiding labor unrest, and gaining measurable management flexibility and benefits are best met by requiring a Project Labor Agreement and, therefore, directs that a Project Labor Agreement be made part of the Project; and;

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia, by:

(1) expediting the construction process and otherwise minimizing the disruption to the project;

(2) avoiding the costly delays of potential strikes, slowdowns, and walkouts arising from work disputes and promoting labor harmony and peace for the duration of the project;

(3) standardizing the terms and conditions governing the employment of labor on the project;

(4) permitting flexibility in work scheduling where necessary at affordable pay rates;

(5) permitting adjustments to work rules and staffing requirements from those which otherwise might obtain;

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(6) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;

- (7) Promoting work opportunities for those within the district
- (8) ensuring a reliable source of skilled and experienced labor;

WHEREAS, Newburgh Enlarged City School District, has, through independent investigation and analysis, determined the substantial cost savings to the Project shall result from the application of this Agreement; and

WHEREAS, the New York State Building and Construction Trades Council, the Hudson Valley Building & Construction Trades Council, and its affiliated Local Unions and their members, desire to provide for stability, security and work opportunities which are afforded by a Project Labor Agreement; and

WHEREAS, the Parties desire to maximize project safety conditions for both workers and others;

NOW, THEREFORE, the Parties enter into this Agreement:

ARTICLE 1 – PARTIES TO THE AGREEMENT

SECTION 1.1 PARTIES TO THE AGREEMENT

This is a Project Labor Agreement ("Agreement") entered into for all construction as part of the Capital Construction Bond Project (as defined below) between (i) the Newburgh Enlarged City School District ("NECSD") (ii) the Hudson Valley Building and Construction Trades Council ("Council") on behalf of itself and its affiliated Local Unions ("Local Unions"); and (iii) the signatory Local Unions on behalf of themselves and their members.

ARTICLE 2 - GENERAL CONDITIONS

SECTION 2.1 DEFINITIONS

Throughout this Agreement:

- (A) "Union Parties" and "Unions" means the Hudson Valley Building & Construction Trades Council, AFL-CIO and the signatory Local Unions, individually and collectively;
- (B) "Local Union(s)" means the Local Unions signatory to this Agreement, individually and collectively;
- (C) "The Project" means the work to be performed in connection with construction of the Capital Construction Project as more fully set forth in Article 3, Section 3.1.
- (D)"Project Work" means the work covered by this Agreement and fully defined

in Article 3, Section 3.1;

- (E) "Contractor(s)" means any General Contractor, Prime Contractor, Construction Manager (or any Contractor who may serve as a successor in that role), and all other contractors and subcontractors of whatever tier engaged in Project Work within the scope of this Agreement as defined in Article 3;
- (F) "Council" means the Hudson Valley Building & Construction Trades Council, AFL-CIO.
- (G) "Owner" means Newburgh Enlarged City School District ("NECSD").
- (H) "Owner's Representative" means any Construction Manager or other entity designated by the Owner to enter into this Agreement or otherwise act on its behalf.

SECTION 2.2 CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE

This Agreement shall not become effective unless each of the following conditions are met: (1) the Agreement is signed by the Council and the Local Unions having jurisdiction over the Project Work; (2) the Agreement is approved by the NYS Building & Construction Trades Council (NYSBCTC); (3) the Agreement is approved by the Building & Construction Trades Department (BCTD); (4) the Agreement is authorized by the Owner and (5) the Agreement is signed by the Construction Manager (CM)

SECTION 2.3 ENTITIES BOUND & ADMINISTRATION OF AGREEMENT

This Agreement shall be binding on all signatory Unions and their affiliates and all Contractors performing Project Work as defined in Article 3. The Contractors shall include in any subcontract that they let for performance during the term of this Agreement a requirement that their subcontractors, of whatever tier, become signatory and bound by this Agreement with respect to that subcontracted work performed within the scope of Article 3, and require that each subcontractor, of whatever tier, sign a letter of assent (Schedule B). This Agreement shall be administered by the Designee named by the Owner pursuant to Schedule C.

SECTION 2.4 SUPREMACY CLAUSE

This Agreement, together with the local Collective Bargaining Agreements appended hereto and referred to herein as "Schedule A" represents the complete understanding with respect to the Project and supersedes any national agreement, local agreement, or other collective bargaining agreement of any type which would otherwise apply to Project Work, in whole or in part, with the following exception: to the extent a Contractor is a signatory to the NTL Articles of Agreement, the National Stack/Chimney Agreement, the National Cooling Tower Agreement, the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, and the National Agreement of the International Union of Elevator Constructors, those agreements shall apply. Notwithstanding this exception, Articles 7, 9, and 10 of this Agreement shall also apply. Where a subject covered by the provisions of this Agreement is also covered by a Schedule A, the provisions of this Agreement shall prevail. If this Agreement is silent on any matter addressed in the applicable Schedule A agreement, the Schedule A agreement shall govern. It is understood that by virtue of having become bound by this Project Labor Agreement, the Contractors will not be obligated to sign any other local, area, or national agreement.

SECTION 2.5 LIABILITY

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The Contractors, and Subcontractors shall not be liable for any violations of this Agreement by any other Contractor or Subcontractor; and the Council and Local Unions shall not be liable for any violations of this Agreement by any other Union. Notwithstanding the above, every signatory to the Agreement further acknowledges that it will be liable for its own breach, partial breach or otherwise, whether related or not to the breach of another signatory.

SECTION 2.6 THE BID SPECIFICATIONS

The Owner shall require in its bid specifications for all Project Work within the scope of Article 3 that all successful bidders and their Subcontractors of whatever tier become bound by, and signatory to, this Agreement. Every Contractor shall require its Subcontractors, of whatever tier, to execute the Letter of Assent in Schedule B and to become bound by this Agreement.

SECTION 2.7 AVAILABILITY AND APPLICABILITY TO ALL SUCCESSFUL BIDDERS

This Agreement shall be binding on all signatory Unions and their affiliates, and all Contractors, unions and/or non-unions performing Project Work. Unless expressly provided for in this Agreement, this Agreement shall not apply to the work of any Contractor which is performed at any location other than the site of Project Work.

ARTICLE 3 - SCOPE OF THE AGREEMENT

SECTION 3.1 PROJECT WORK

This Agreement shall only apply to Project Work as defined in this Article.

Subject to the exclusions in this Article, Project Work means solely that work performed in connection with construction of the Capital Construction Projects as approved by the Bond vote on May 21, 2019 and included in the contract documents bid on the Capital Construction Projects. Specifically excluded from coverage under this Agreement is:

(a) all work relating to bids solicited and/or work awarded prior to the execution of this Agreement by the parties and/or approval of it by NECSD,

(b) maintenance and repair work performed in the normal course of NECSD's operations,

(c) any work to be completed by the NECSD or any of its term maintenance contractors and/or vendors,

(d) any computers, work shop equipment tied to computers CNC machines, 3d related equipment, robotic equipment, donated hospital or nursing equipment, printers, monitors, data switching equipment, wireless access points which shall be installed by others (except contractors would install any associated mounting hardware, brackets etc. and provide interconnecting cabling and conduit).

(e) pool construction bid prior to execution of this agreement.

SECTION 3.2 TIME LIMITATIONS

To be covered by this Agreement, Project Work must be awarded after the effective date of this Agreement.

This Agreement shall expire upon completion and acceptance by the Owner of any Project component. The Agreement shall not have further force or effect on such items or areas except where inspections, additions, repairs, modifications, check-out and/or warranty work are assigned in writing (copy to Local Union involved) by the CM for explicit performance under the terms of this Agreement. This Agreement may be extended by written mutual agreement of the parties.

Due to the uncertainty of future funding, uncertainties related or due to the COVID 19 pandemic and the length of the project, the parties to this agreement agree to meet upon notice from NECSD or the construction manager for the purpose of amending the agreement.

SECTION 3.3 EXCLUDED EMPLOYEES

Notwithstanding the provisions of Section 3.1 of this Article, the following person/entities are not subject to the provisions of this Agreement even though performing work on or in connection with the Project:

a Superintendents, supervisors (excluding general and forepersons specifically covered by a craft's Schedule A), engineers, inspectors and testers, quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards employed by Owner, technicians, non-manual employees, and all professional, engineering (except field surveyors), administrative and management persons;

- h Employees of the Project Owner;
- c. Employees and entities engaged in off-site manufacture, modifications, repairs, maintenance, or painting, handling or fabrication of project components, materials, equipment, or machinery or any deliveries including local deliveries of all major construction materials such as fill, ready mix, asphalt, concrete and other aggregates except when any of the above project work is covered under New York State Labor Law 220 (Prevailing Wage) it shall be covered under this Agreement.

d. Employees of the Construction Manager, except those performing manual, on-site construction labor who will be covered by this Agreement;

e. Employees engaged in on-site equipment warranty work;

f. Employees engaged in geophysical testing (whether land or water) other than boring for core samples;

g. Employees engaged in laboratory or specialty testing or inspections, unless ordinarily done by a member of a Trade Union;

h. Employees engaged in ancillary Project Work performed by third parties such as electric utilities, gas utilities, telephone companies, and railroads. Utility work provided by gas, electric, and cable companies, which is not performed by utility company employees, shall be subject to the terms of this Agreement.

Unless specifically excluded in this Agreement, all furniture, fixtures, and equipment that are fastened, mounted, or adhered to a surface by glue, screws, nails, mechanical fasteners, or by any other means shall be included as covered work under this Agreement. This shall include all unloading, loading, transporting to place of install, clean-up, uncrating, and unwrapping of protective coverings. The above items that are not fastened, mounted, or adhered to a surface shall be excluded from this Agreement. This shall not preclude the Owner from using respective unions to unload, carry, place, or clean-up of these items, unless such services are performed directly by the Owner or by a vendor working on State Contract which may not be party to this Agreement.

i. Employees and consultants engaged in security and control services manufacturing and installation if not included in or part of the Contractors contract, except for the installation of conduit-cable related to security and controls which shall be covered work under this agreement. j. Employees and entities engaged in the removal of all on-site construction debris, waste materials or onsite soils or materials except when this work is covered under New York State Labor Law 220 (Prevailing Wage) it shall be covered under this Agreement.

k. Employees of contractors performing excluded work under Article 3.1d

ARTICLE 4 - UNION RECOGNITION AND EMPLOYMENT

SECTION 4.1 PRE-HIRE RECOGNITION

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all craft employees who are performing Project Work within the scope of Article 3 of this Agreement.

SECTION 4.2 UNION REFERRAL

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- A. The Contractors agree to hire craft employees for Project Work covered by this Agreement through the job referral systems and hiring halls established in the Local Unions' area collective bargaining agreements (attached as Schedule A to this Agreement), where those referrals meet the qualifications set forth in items 1, 2, and 4 of subparagraph B. The Unions agree to provide such craft employees (including apprentices) to all Contractors on a non-discriminatory basis. Notwithstanding this. Contractors shall have sole right to determine the competency of all referrals; the number of employees required; and the selection of employees for layoff (subject to Article 5, Section 5.3). In the event that a Local Union is unable to fill any request for qualified employees within a 48-hourperiod after such requisition is made by a Contractor (Saturdays, Sundays and holidays excepted), a Contractor may employ qualified applicants from any other available source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of craft employees hired for Project Work within its jurisdiction from any source other than referral by the Union. The Local Unions will cooperate with Contractor requests for minority, women, or economically disadvantaged referrals to meet the goals of Article 4. Section 4.4. These workers may be delivered under a "Direct Entry" designation or by use of a Department of Labor waiver.
- B. A Contractor may request by name, and the Local Union will honor, referral of persons who have applied to the Local Union for Project Work and who meet the following qualifications:
 - (1) possess any license required by New York State law for the Project Work to be performed;
 - (2) Have worked a total of at least 1000 hours in the construction craft during the

prior two years, and

- (3) Were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award.
- (4) Have the ability to safely perform the basic functions of the applicable trade.

(5) Have not committed a felony or misdemeanor, or other violation that would render such person unfit to work on school district property.

- C. Except as specifically addressed in (F) below, no more than twenty (20%) per centum of the employees covered by this Agreement, per Contractor by craft, shall be hired through the provisions of Paragraph B of this section (any fraction shall be rounded to the next highest whole number). Craft forepersons and/or general forepersons shall be included in these twenty (20%) percent. If requested by the appropriate Union, a Contractor utilizing this provision for by-name referrals shall furnish the Union with a written certification that the individuals requested for referral meet the requirements of (1) (4) above.
- D. The Local Unions shall exert their utmost efforts to recruit sufficient numbers of skilled craft workers to fulfill the manpower requirements of the Contractor. When a contractor of any tier is contracted to perform work on the project and such contractor is not signatory to a Schedule A agreement (not including signatory through this agreement) and the Union cannot provide ample labor to support the construction schedule or project. The contractor shall hire outside the union hiring halls and the contractor shall at their discretion replace the non-union or non-dispatched employee when notified by the union that labor has become available through the union. The contractor shall use other employees affiliated with the Council before hiring except, where specifically addressed in this agreement if those employees from the other unions have the required trade skills to perform the work. Those hired through this provision shall be laid off before those of an affiliated union.

E. Notwithstanding the foregoing, the NECSD shall have the sole discretion to request that a person be removed from working on this Project.

F. For work related to construction of the career tech education proprietary equipment as agreed upon by the parties, the contractor, installer or vendor shall hire one company or core employee through the special provisions and at the same time hire one employee hired through the respective union and after 2 employees no more than 33.3% of the employees covered by this Agreement, per Contractor by craft, shall be hired through the provisions of Paragraph B of this section (any fraction shall be rounded to the next highest whole number). Craft forepersons and/or general forepersons shall be included in this 33.3%. If requested by the appropriate Union, a Contractor utilizing this provision for by-name referrals shall furnish the Union with a written certification that individuals requested for referral meet the

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SECTION 4.3 NON-DISCRIMINATION IN REFERRALS

The Local Unions represent that their hiring halls and referral systems shall be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations which require equal employment opportunities. Referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies, or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's union membership, or lack thereof.

SECTION 4.4 WORKFORCE DIVERSITY UTILIZATION

The Unions recognize and acknowledge that workforce diversity of minorities and women are employment goals consistent with our values of fair play. The Local Unions agree and will strive to utilize their best efforts to provide qualified minority and female applicants.

SECTION 4.5 CROSS AND QUALIFIED REFERRALS

The Local Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions shall exert their utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of the Contractor.

SECTION 4.6 UNION DUES

Nothing in this Agreement requires employees to join a union or pay dues or fees to a union as a condition of working on the covered project. This Agreement is not, however, intended to supersede independent requirements in applicable local union agreements as to contractors that are otherwise signatory to those agreements and as to employees of such employers performing covered work.

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ARTICLE 5 – UNION REPRESENTATION

SECTION 5.1 LOCAL UNION REPRESENTATIVE

Each Local Union signatory to this Agreement shall be entitled to designate a representative and/or Business Manager who shall be afforded access to the Project site.

SECTION 5.2 STEWARDS

- A. Each Local Union shall have the right to designate from among those referred to the Project a working journey person as a Steward or Lead Engineer and one alternate per shift, and shall notify the General Contractor of the identity of the designated Steward or Lead Engineer (and alternate) prior to the assumption of such duties. Stewards or Lead Engineer shall not exercise supervisory functions and shall receive the regular rate of pay for their craft classifications. There will be no non-working Stewards or Lead Engineer on the Project.
- B. In addition to his/her work as an employee, the Steward or Lead Engineer shall have the right to receive complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor; such activities, however, are not to interfere with the Steward's work unless an emergency situation exists. Each Steward or Lead Engineer shall be concerned with the employees of the Steward's Contractor and, if applicable, subcontractors of that Contractor, but not with the employees of any other Contractor. The Contractor will not discriminate against the Steward or Lead Engineer in the proper performance of Union duties.

SECTION 5.3 LAYOFF OF A STEWARD

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a

Steward or Lead Engineer, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A, such provisions shall be recognized to the extent the Steward or Lead Engineer possesses the necessary qualifications to perform the work required. In any case in which a Steward or Lead Engineer is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

SECTION 5.4 UNION STANDARDS

The Council and its affiliates have a legitimate interest in preventing the undermining of the work opportunities and standards gained through collective bargaining and desire to preserve and protect work opportunities for its members.

NECSD, while recognizing this interest, must maintain its ability to utilize the services of off-site fabricators and those entities involved in deliveries of construction materials when not covered under New York State Labor Law 220.

While the scope of the Agreement is limited to construction as defined, Contractors should whenever economically feasible make reasonable efforts to use union signatory vendors, which includes, but not limited to, UA Yellow Label and SMW Blue Label products for off-site assemblies or fabrications and deliveries of construction materials. The Construction Manager agrees to support efforts to retain as much work as possible.

This article does not refer to construction material normally purchased preassembled or manufactures, it references work normally and historically done on-site or in local union fabrications shops.

If any dispute should arise with respect to this Article, the Trades agree to install any off-site assemblies or fabricated items regardless of the source. The parties shall endeavor to settle such dispute in the Labor Management forum or appropriate subcommittee before a grievance is filed under Article 9.

ARTICLE 6 – MANAGEMENT RIGHTS

SECTION 6.1 RESERVATION OF RIGHTS

Except as expressly limited by a specific provision of this Agreement, Contractors retain full and exclusive authority for the management of their operations including, but not limited to: the right to direct the work force, including determination as to the number to be hired and the qualifications therefore; the promotion, transfer, layoff of its employees; or the discipline or discharge for just cause of its employees; the assignment and schedule of work; the promulgation of reasonable Project work rules; and the requirement, timing

and number of employees to be utilized for overtime work. Nothing contained herein shall be construed so as to allow direction of an Employee to perform work outside the jurisdiction of that Employee's Labor Union affiliation, if any. No rules, customs, or practices which limit or restrict productivity or efficiency of the individual (as determined by the Contractor) and/or joint working efforts with other employees shall be permitted or observed.

SECTION 6.2 MATERIALS, METHODS & EQUIPMENT

There shall be no limitation or restriction upon the Owner's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials, tools, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source. The on-site installation or application of such items shall be performed by the craft having jurisdiction over such work pursuant to an applicable collective bargaining agreement; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in the installation, check-off or testing of specialized or unusual equipment or facilities as designated by the Contractor.

ARTICLE 7 - WORK STOPPAGES AND LOCKOUTS

SECTION 7.1 NO STRIKES-NO LOCK OUT

There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, demonstrations or other disruptive activity on Project Work site for any reason by any signatory to this Agreement. There shall be no union or concerted or employee activity which disrupts or interferes with the Project Work. Should any employee breach this provision, the Unions will use their best efforts to immediately end the breach and return all employees to work. There shall be no lockout by any signatory to this Agreement.

SECTION 7.2 DISCHARGE FOR VIOLATION

A Contractor may discharge any employee violating Section 7.1, above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 working days.

SECTION 7.3 NOTIFICATION

If a Contractor contends that any Union has violated this Article, it shall notify the Council of such fact, with copies of the notification to the Local Union involved. The Council and Local Union shall instruct, order, and otherwise use their best efforts to cause the employees to immediately cease and desist from any violation of this Article. The Council shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union and its members shall not be liable for any unauthorized acts of its members, the Council, or another Local Union.

SECTION 7.4 EXPEDITED ARBITRATION

Any Contractor or Union alleging a violation of Section 7.1 of this Article or Section 8.3(D)(ii) of Article 8 may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify J.J. Pierson, Neal M. Eiseman and Thomas Hines who shall alternate as Arbitrator under this expedited arbitration procedure. If the Arbitrator next on the list is not available to hear the matter within 24 hours of notice, the next

Arbitrator on the list shall be called. Copies of such notification will be simultaneously sent to all parties (the alleged violator, the Council, the Local Union, the Contractor, and the Owner).

- B. The Arbitrator shall hold a hearing within 48 hours of receiving the notice invoking the procedure if it is contended that the violation still exists. The Arbitrator shall provide at least 24 hours' notice (excluding Sundays and holidays) to all parties as to time and place of the hearing.
- C. All notices pursuant to this Article must be delivered to all parties (Local Union, Council, Contractor, alleged violator) and may be provided by telephone, telegraph, hand delivery, fax, email, or confirmed overnight delivery. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side to present their case and conduct their cross examination) unless otherwise agreed. A failure of any party to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.
- D. (i) Section 7.1 hearings:

The sole issue at the hearing shall be whether a violation of Section 7.1 occurred. If a violation is found to have occurred, the Arbitrator shall issue a Cease-and-Desist Award restraining such violation and serve copies on all parties. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages (any damages issue is reserved solely for court proceedings, if any). The Award shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award. (ii) Section 8.3(D)(ii) hearings:

The sole issue at the hearing shall be whether a violation of Section 8.3(D)(ii) occurred. If a violation is found to have occurred, it shall be prima facie evidence of intentional mis-assignment, and the Arbitrator shall issue an immediate stop-work order with respect to the work involved and reassign the work as necessary. The Arbitrator is also authorized to (a) award damages or back pay in order to make the aggrieved trade whole, and (b) remove the offending contractor from the job in egregious situations.

- E. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to all parties. In any court proceeding to obtain a temporary or preliminary order enforcing the Arbitrator's Award as issued under this expedited procedure, the involved Union and Contractor waive their right to a hearing and agree that such proceeding may be commenced by order to show cause. Such agreement does not waive any party's right to participate in a hearing for a final court order of enforcement or in any contempt proceeding.
- F. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.
- G. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

SECTION 7.5 ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 7.1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 7.1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

ARTICLE 8 – LABOR MANAGEMENT COMMITTEE

SECTION 8.1 SUBJECTS

The Project Labor Management Committee ("Committee") will meet on a regular basis to: 1) promote harmonious relations among the Contractors and Unions; 2) enhance safety awareness, cost effectiveness and productivity of construction operations; 3) protect the public interest; 4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; and 5) review Affirmative Action and equal employment

SECTION 8.2 COMPOSITION

The Committee shall be jointly chaired by a designee of the Owner and the Council. It may include representatives of the Local Unions and contractors involved in the issues being discussed. The Committee may conduct business through mutually agreed upon subcommittees.

SECTION 8.3 PRE-JOB CONFERENCE

- (A) So that the start and continuation of work may progress without interruption, the Committee shall require each Contractor and Subcontractor of whatever tier to conduct a pre-job conference with the Council prior to commencing work. The Construction Manager and General Contractor shall be advised in advance of such conferences and may participate if they wish.
- (B) The purpose of the pre-job conference shall be for the parties to gain an understanding of each Contractor's proposed work assignments, the standard work day and work week, the number of employees to be employed, the method of referral, the applicable wage rates and fringe benefit contributions and any other matters in accordance with this Agreement.
- Proposed Trade Assignments. In conjunction with the pre-job conference, each (C) Contractor shall fill out the attached Schedule D - Proposed Trade Assignments identifying all subcontractors and indicating what trades will be used to perform the Project work. This form shall be submitted to the Council at least fourteen (14) days in advance of the commencement of work. If any Local Union(s) objects to or disagrees with the Proposed Trade Assignment of either the Contractor or subcontractor, the Local Union will state its objection and there shall be a good faith discussion among the Contractor or subcontractor and the objecting Local Union and other affected Unions to resolve the matter. If no resolution is reached, any involved Local Union may submit their position in writing, together with support documentation, within seven (7) calendar days to the Contractor or subcontractor with a copy to all affected Local Unions. The Contractor or subcontractor will review all submitted supporting documentation regarding the Proposed Trade Assignments and will submit to the General Contractor, the Council, and all affected Local Unions a "Final Trade Assignment" letter within fourteen (14) days calendar days of the pre-job meeting at which the Proposed Trade Assignments were made.

- (D) Disputes and Violations.
 - (1) Unresolved disputes concerning trade assignments shall be handled in accordance with Section 10.1, 10.2, and 10.3 of Article 10 in accordance with the National Plan established by the Building and Construction Trades Department, provided however, that disputes concerning intra-trade assignments (assignments between trades within the same International Union) will be determined by the applicable International Union.
 - (2) Failure to conduct a pre-job conference, failure to include all required parties in a pre-job conference, or failure to adhere to agreed-upon Schedule D trade assignments is a violation of this Agreement and prima facie evidence of intentional mis-assignment. Alleged violations of this provision shall be considered a lock-out and subject to the expedited arbitration procedures of Article 7, Section 7.4.
 - (3) All remaining unresolved issues shall be subject to the provisions of Article 9.

ARTICLE 9 - GRIEVANCE & ARBITRATION PROCEDURE

SECTION 9.1 CLOSE COOPERATION

The Contractors, Unions, and employees, collectively and individually, realize the importance to all parties to maintain continuous and uninterrupted performance of Project Work and agree to resolve disputes in accordance with the grievance-arbitration provisions set forth in this Article.

SECTION 9.2 PROCEDURE

Any question, dispute or claim arising during the term of this Agreement involving the interpretation or application of this Agreement (other than jurisdictional disputes and alleged violations Section 7.1, and Section 8.3(D)(i) or (ii), shall be considered a grievance and shall be resolved pursuant to the following procedure.

Step 1:

(a). When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall give notice of the claimed violation to the Local Union representative or job steward, who shall notify the work site representative of the involved Contractor and the

General Contractor. To be timely, such notice must be given within 7 calendar days after the act, occurrence or event giving rise to the grievance. The Local Union representative or the job steward shall meet with the work site representative of the involved Contractor and the General Contractor and endeavor to adjust the matter within 7 calendar days after timely notice has been given. The representative of the involved Contractor shall keep the minutes of the meeting and shall respond to the Union representative in writing, with copy to the General Contractor, within twenty-four (24) hours after the conclusion of the meeting. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved unless the settlement is accepted in writing by the Labor-Management Committee as creating a precedent with respect to Project Work.

(b) Should any signatory to this Agreement have a dispute [excepting jurisdictional disputes and alleged violations of Section 7.1 or Section 8.3(D)(i) or (ii) with any other signatory to this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute may be reduced to writing and the grieving party may proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

Step 2:

Upon timely receiving a written grievance, the involved Contractor shall notify and schedule a meeting with the Business Manager of the involved Local Union, the Council, and the General Contractor, and their respective representatives, for the purpose of arriving at a satisfactory settlement. Such meeting shall be held within 7 calendar days of the involved Contractor's receipt of the written grievance. Meeting minutes shall be kept by the Contractor with copies to the parties within twenty-four (24) hours.

Step 3:

(a) If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 21 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants, including the General Contractor) along with copies of the minutes from Step 1 and Step 2, to (J.J. Pierson, Neal M. Eiseman and Thomas Hines) who shall act, alternately, as the Arbitrator under this procedure. The

Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union, and employees, and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union.

(b). Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the General Contractor, the involved Contractor, and the involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

ARTICLE 10 - JURISDICTIONAL DISPUTES

SECTION 10.1 ASSIGNMENT

The assignment of work shall be solely the responsibility of the Contractor performing the work involved, subject to the pre-job conference and the procedures set forth in Section 8.3(C), and such work assignments shall be in accordance with the National Plan for the Settlement of Jurisdictional Disputes in the Construction Industry ("National Plan") or any successor Plan approved by the Building & Construction Trades Department, AFL-CIO.

SECTION 10.2 PROCEDURE FOR SETTLEMENT OF JURISDICTIONAL DISPUTES

All jurisdictional disputes involving Project Work shall be settled according to the National Plan, provided however, that disputes concerning intra-trade assignments (assignments between trades within the same International Union) will be determined by the applicable International Union.

SECTION 10.3 NO DISRUPTIONS

There will be no strikes, work stoppages, or slowdowns, arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted and as assigned by the Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

SECTION 10.4 AWARD

Any jurisdictional award pursuant to this Article shall be final and binding on the

disputing Unions and the involved Contractor on this Project only, and may be enforced in

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any court of competent jurisdiction. Such award or resolution shall not establish a precedent on any other construction work not covered by this Agreement.

SECTION 10.5 LIMITATIONS

Awards made under this Article shall determine only to whom the disputed work belongs. The deciding person or group hereunder shall have no authority to (a) assign work to a double crew, that is, to more employees than the minimum required by the Contractor to perform the work involved; (b) assign the work to employees who are not qualified to perform the work involved; or (c) assign work being performed by non-union employees to union employees. This provision does not prohibit the establishment, with the agreement of the involved Contractor, of composite crews where more than one (1) employee is needed for the job.

ARTICLE 11 - WAGES AND BENEFITS

SECTION 11.1 CLASSIFICATION AND HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the wage rates applicable for those classifications as required by the Schedule A applicable to the work. The term "straight time" in this Agreement shall mean the hourly wage rate applicable for those classifications as required by the applicable New York State Labor Law Section 220 ("Section 220") prevailing wage determination.

SECTION 11.2 EMPLOYEE BENEFITS

A. Unless expressly provided differently in this Agreement, Contractors agree to pay employee benefits/supplements on behalf of all of their employees covered by this Agreement in the amounts required by the applicable Section 220 schedule in effect. Except as provided herein, the Contractors agree that such payments shall be made to those established jointly trusteed employee benefit funds designated in Schedule A, and in the amounts so designated, to the extent such payments are required by and satisfy the Section 220 obligation. Bona fide jointly trusteed fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if they similarly fall within Section 220. Contractors not otherwise contractually bound to do so shall not be required to contribute to non-Section 220 benefits, trusts or plans; however, this provision does not relieve Contractors signatory to local collective bargaining agreements with any Local Union from complying with the benefit requirements for all funds contained in those collective bargaining agreements.

- B. Notwithstanding Section 11.2(A):
 - (1) Contractors who designate employees pursuant to Article 4, Section 4.2(B), may satisfy the above benefits obligation with respect to those employees by: (1) providing those employees with coverage under their private benefit plans for health, welfare, pension, annuity and 401(k); or (2) paying the full amount of such benefit to the employee in employees' wages. The total benefit payments to be made on behalf of each such employee must equal the total Section 220 benefit/supplement amount. If the Contractor's contribution into the private benefit plan for the above funds is less than the amount required by Section 220, the difference must be paid to the employee in cash. Payments of other benefits covered under Section 220 shall be paid to the respective Unions on behalf of employee
 - (2) This same option shall apply with respect to any other employee who is referred to the Contractor through the hiring hall process provided such employee was previously employed by the Contractor and was a participant in a bona fide private benefit plan maintained by the Contractor which satisfies the requirements of Section 220.
 - (3) The option for a private plan equivalent supplement shall not apply to contributions into Joint Apprentice Training Committee (JATC) or similar apprentice funds designated in Schedule A if the Contractor does not have an apprentice training program approved by the Department of Labor. Upon request by the Council, any contractor providing coverage under this provision will provide the Council with documentation of benefit payments made to individual employees during the term of their employment on the Project.
 - (4) Contractors who exercise the option under Section 11.2(B) of this Article to pay into their own private benefit plans rather than the applicable jointly trusteed funds designated in Schedule A shall be responsible for and guarantee employee benefit/supplement payments and shall indemnify and hold harmless the jointly trusteed funds designated in Schedule A against any and all benefit/supplement claims by its employees.
- C. Contractors who contribute to jointly trusteed funds under this Section agree to be bound by the written terms of the legally-established jointly trusteed Trust agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such trust funds but only with regard to work done on this Project and only for those employees for whom this Agreement requires such benefit Payments. Notwithstanding the foregoing, a Contractor's liability shall be at all times limited to the amount of contributions required to be made to the Trust Funds.

D. Each Contractor shall be responsible for and guarantee the payment of all required fringe benefits on the Project. The Local Unions and/or the Council shall notify the General Contractor and the Construction Manager within 120 hours excluding weekends whenever a Contractor or Subcontractor, including the General Contractor, fails to make a required benefit payment and such delinquency remains outstanding after 30 days. Notification must be in writing and may be by email. If written notice of such a delinquency is received by the General Contractor within that 48-hour period, the General Contractor shall notify the Construction Manager immediately, but in any case, within 24 hours. If the Construction Manager receives notice of a delinquency by the General Contractor, it shall withhold from any funds due to the delinquent Contractor the amount of that delinquency, up to the total amount due, until any dispute regarding the delinquency has been resolved. The General Contractor shall have no other obligation with respect to contributions owed by any Contractor (or its Subcontractor); but the General Contractor shall continue to be obligated with respect to contributions based on work done by the General Contractor. If notice of a delinquency is not received by the Construction Manager within the required time periods, Owner shall have no basis upon which to withhold, with respect to that delinquency, any part of a payment which is otherwise due. Construction Manager shall require contractors to submit proof of benefit payment with pay request.

ARTICLE 12 - HOURS OF WORK, PREMIUM PAYMENTS, SHIFTS AND HOLIDAYS

SECTION 12.1 WORK WEEK AND WORK DAY

A. Unless otherwise provided for in this Agreement, the standard work week shall be five days, Monday through Friday, eight hours per day plus ½ hour unpaid lunch period each day. The starting time for the standard work week shall start at either 6:00 a.m., 6:30 a.m., 7:00 a.m., 7:30 a.m. or 8:00 a.m. Multiple starting times shall be allowed.

B. Four-tens: notwithstanding any other provision of the Agreement, when working a four-day work week, the work shall consist of 4 days, Monday through Thursday, ten hours per day plus $\frac{1}{2}$ hour unpaid lunch period at the straight time rate. The starting time for four-tens shall be 6:00 a.m. 6:30 a.m. 7:00 a.m. A three-day minimal notice shall be required for four-tens to the respective involved unions.

C. On a 5-day work week, Saturday may be used as a make-up day at straight time to fulfill the 40-hour work week due to inclement weather. On a 4-day work week, Friday maybe used as a make-up day at straight time to fulfill the 40-hour work week. Make-up days shall be scheduled for a minimum of 8 hours, except in the case of inclement weather in which Section 12.5 shall apply. Make-up days shall not be mandatory and no discipline shall be taken against employees electing not to work the make-up day. This shall also apply when more than one shift or multiple shifts are worked.

D. The changing of the regular starting time, except in the case of overtime and the switch from a 5- day and 4-day work weeks shall be a 4-week minimum.

SECTION 12.2 OVERTIME

Overtime pay for hours outside of the standard work week and work day, defined in Section 12.1, and all work on Saturdays shall be paid at time and one half the hourly rate and benefits will be paid on straight time. All work on Sundays shall be paid at two times the hourly rate and benefits will be paid at straight time.

SECTION 12.3 SHIFTS

- A. Flexible Schedules Scheduling of shift work, including Saturday and Sunday work, shall be within the discretion of the Contractor in order to meet Project Work schedules and existing Project Work conditions. Shifts must have prior approval of the General Contractor and/or Owner and must be scheduled with not less than three work days' notice to the Local Union.
- B. Second and/or Third Shifts -- Saturday and/or Sunday Work.

The second shift shall start between 3 p.m. and 6 p.m. and the third shift shall start between 11 p.m. and 2 a.m. Shift differentials shall be straight time plus fifty percent (50%) of the Schedule A shift differential. No other premium or payments for such work shall be required unless such work is in excess of 40 hours during the week. There shall be no reduction in hours worked on a second and/or third shift, except that when 3 shifts are working together, the length of one or more shifts can be reduced to accommodate a 24-hour day and only actual hours worked will be paid. Work performed on Saturdays or Sundays shall be paid as provided in the applicable Schedule A.

- C. To clarify above: "Schedule A Shift Differential designated percentage rates vary according to each trade's prevailing Collective Bargaining Agreement. Shift work as part of this Project Labor Agreement is 50% of the designated percentage of the shift percentages of each trades, for example if a trades shift differential is 15% it would be 7.5%."
 SECTION 12.4 HOLIDAYS
 - A. Schedule There shall be seven (7) recognized holidays:

New Year's Day President's Day Memorial Day Fourth of July Labor Day Thanksgiving Day Christmas Day

All said holidays shall be observed on the dates designated by New York State Law. In the absence of such designation, they shall be observed on the calendar date, except that holidays which occur on Sunday shall be observed on the following Monday.

- B. Payment Regular holiday pay, if any, for work performed on a recognized holiday shall be in accordance with the applicable Schedule A. There will be no benefits paid on holidays unless worked.
- C. Exclusivity No holidays other than those listed in Section 12.4 shall be recognized or observed.

SECTION 12.5 REPORTING PAY

- A. Employees who report to the work location pursuant to a regular schedule and who are not provided with work or whose work is terminated early by a Contractor, for whatever reason, shall receive two (2) hours reporting pay and actual hours worked thereafter
- B. When an employee who has completed his or her scheduled shift and has left the Project site is "called out" to perform special work of a casual, incidental, or irregular nature, the employee shall receive pay for actual hours worked at applicable straight time or overtime rates in accordance with this Agreement, but no less than a minimum guarantee of one (1) hour at the employee's straight time rate.
- C. When an employee leaves the job or work location of their own volition, is discharged for cause, or is not working as a result of the Contractor's invocation of Section 12.8 below, he or she shall be paid only for the actual time worked.
- D. There shall be no pay for time not actually worked except as specifically set forth in this Article 12 and where an applicable Schedule A applies to Forepersons, Stewards and Lead Engineer in reference to pay.

SECTION 12.6 PAYMENT OF WAGES

A. Payday: Payment shall be made by check, drawn on a New York bank with branches located within commuting distance of the job site. Paychecks shall be issued by the Contractor at the job site by 3:00 p.m. on Thursdays. In the event that the following Friday is a bank holiday, paychecks shall be issued on Wednesday of that week. Not more than one week's wages shall be held back in any pay period. Paycheck stubs shall contain the name and business address of the Contractor, together with an itemization of deductions from gross wages. B. Termination: Employees who are laid off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractor shall also provide the employee with a written statement setting forth the date of layoff or discharge.

SECTION 12.7 INJURY/DISABILITY

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than eight (8) hours wages for that day. Further, the employee shall be rehired at such time as the employee is able to return to duties provided there is still work available on the Project for which the employee is qualified and able to perform.

SECTION 12.8 EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life, property, and/or safety of employees or others, suspend all or a portion of Project Work. In such instances, employees shall be paid for actual time worked; provided however, that when a Contractor requests that employees remain at the job site available for work, employees shall be paid for "stand-by" time at their hourly rate of pay.

ARTICLE 13 - APPRENTICESHIP & HELMETS TO HARDHATS

SECTION 13.1 APPRENTICE RATIOS

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such work as is within their capabilities and that is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications as are contained in the applicable Schedule A in a ratio of not less than twenty-five percent (25%) of the work force by craft (without regard to whether a lesser ratio is set forth in Schedule A), unless the applicable Schedule A provides for a higher percentage. The first person assigned to the job shall be a Journeyman. The second person assigned may be an apprentice. Subsequent assignments shall be Journeymen until the applicable ratio is achieved. This assignment shall be repeated until staffing needs are satisfied. Apprentices and such other classifications as are appropriate will be employed in a manner consistent with the provisions of the applicable Schedule A.

SECTION 13.2 NYS DEPARTMENT OF LABOR- APPRENTICESHIP

To assist the Contractors in attaining a maximum effort on this Project, the Unions agree to work in close cooperation with, and accept monitoring by, the New York State Department of Labor to ensure that minorities and women are afforded every opportunity to participate in apprenticeship programs that result in the placement of apprentices on this Project. In addition, up to fifty percent (50%) of the apprentices placed on this Project may be first year, minority, women or economically disadvantaged apprentices. The Local Unions will cooperate with Contractor requests for minority, women, or economically disadvantaged referrals to meet this Contractor effort. These workers may be delivered under a "Direct Entry" designation or by use of a Department of Labor Walver.

SECTION 13.3 HELMETS TO HARDHATS

The Contractors and the Unions desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and the Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (the "Center") and the Center's "Helmets to Hardhats" program as a resource for preliminary orientation and assessment of construction aptitude; referral to apprenticeship programs or hiring halls; counseling and mentoring; and support networks, employment opportunities, and other needs as identified by the parties.

The Unions and the Contractors agree to work with the Center to create and maintain an integrated database of veterans interested in working on the Project as well as information about apprenticeship and employment opportunities related to this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

SECTION 13.4 PARTICIPATION GOALS (MBE, WBE, SVDOB)

The Newburgh School District, contractors, the Hudson Valley Building and Construction Trades Council and its affiliated unions are committed to meeting the NYS Participation Goals and shall be in alignment with the current goal or standards set for by New York State for Minority Business Enterprises (MBE), Woman Owned Business Enterprise (WBE) and Service-Disabled Veteran Owned Business (SVDOB) to ensure participation on the project by MBE, WBE and SVDOB firms while maintaining fiscal responsibility.

Outreach by the construction managers, contractors, Hudson Valley Building and Construction Trades and affiliated unions and contractor associations to ensure participation goals of MBE, WBE and SVDOB firms are met will be required through the project.

ARTICLE 14 – NO DISCRIMINATION

SECTION 14.1 COOPERATIVE EFFORTS

The Contractors and Unions agree that they shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, marital status, age, union or non-union status, real or perceived sexual orientation or any other status protected by law, in any manner prohibited by law or regulation. It is recognized that special procedures may be established by Contractors and Local Unions and the New York State Department of Labor for the training and employment of persons who have not previously qualified to be employed on construction projects of the type covered by this Agreement. The parties to this Agreement shall assist in such programs and agree to use their best efforts to ensure that the goals for female and minority employment are met on this Project. Nothing in this section shall be grieveable.

SECTION 14.2 LANGUAGE OF AGREEMENT

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE 15– GENERAL TERMS

SECTION 15.1 PROJECT RULES

The Construction Manager, General Contractor and/or other Contractors may establish from time to time such reasonable Project rules as are necessary for the good order of the Project. These rules shall be outlined at the pre-job conference, detailed in the contract documents, posted at the Project site, and may be amended thereafter as necessary.

Security Protocols – The Construction Manager and/or NECSD, in their sole discretion, will determine security protocols for the entire Project Site. Strict compliance by all employees with security procedures, protocols, and directives issued by these entities or its delegated, is required by all employees at all times.

SECTION 15.2 TOOLS OF THE TRADE

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

SECTION 15.3 SUPERVISION

Employees shall work under the supervision of the craft foreperson or general foreperson.

SECTION 15.4 FULL WORKDAY

Employees shall be at their work area at the starting time established by the Contractor. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

SECTION 15.5 CAREER AND TECHNICAL EDUCATION ("CTE")

With the exception of work already excluded under this Agreement, the parties to this Agreement agree to meet for the purpose of determining which proprietary equipment in the Career and Technical Education ("CTE") Building will be included or excluded under the Project Labor Agreement. This equipment includes, but is not limited to, the equipment in the café, culinary room, auto, makers spaces, photo/art, nursing and EMS, cosmetology/barbershop, architecture/engineering and carpentry/machinery rooms. The parties shall meet upon finalization of plans & specifications for the "CTE" Building and in advance of advertisement of bids related to the "CTE" Building.

ARTICLE 16 - SAFETY PROTECTION OF PERSON AND PROPERTY

SECTION 16.1 SAFETY REQUIREMENTS

Each Contractor will ensure that applicable OSHA and New York State mandated safety requirements are at all times maintained on the Project and the employees and Unions agree to cooperate fully with these efforts. Employees must perform their work at all times in a safe manner and protect themselves and the property of the Contractor and NECSD from injury or harm. Failure to do so may be grounds for discipline, including discharge. Prevention of accidents at the site is the responsibility of the Contractors, its employees, subcontractors and suppliers, persons, and entities at the site. The Contractors shall establish their own safety programs implementing safety measures, policies, and standards conforming to those required or recommended by governmental and quasi-governmental authorities having jurisdiction. The Construction Manager is not responsible for identifying unsafe practices.

nor for failure to stop the Contractors' unsafe practices; and, the Construction Manger's failure to stop the Contractors' unsafe practices shall not relieve the Contractors of the responsibility therefore.

SECTION 16.2 CONTRACTOR RULES

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Owner. Such rules will be published in the contract documents and may be posted in conspicuous places throughout the Project.

SECTION 16.3 INSPECTIONS

The Contractors and NECSD's Architect and Construction Manager retain the right

to inspect incoming shipments of equipment, apparatus, machinery, and construction materials of every kind.

ARTICLE 17 – TEMPORARY SERVICES

Temporary light, power, cooling, ventilation and other services shall only be required on the specific request of the Contractor and when requested shall be assigned to the appropriate trade with jurisdiction. Temporary coverage may be provided by the Contractor's employees already working under this Agreement during regular work hours. The Contractor will determine the need for temporary coverage requirements during nonwork hours. For safety reasons, temporary light and power panels will only be accessed by employees of the electrical contractor responsible for supplying the temporary light and power panels. This shall not require a standby employee who is not performing Project Work. There shall be no stacking of trades on temporary services. In the event temporary services are claimed by multiple trades, the matter shall be resolved pursuant to Article 10.

ARTICLE 18 - SAVINGS AND SEPARABILITY

SECTION 18.1 THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, the provision involved (and/or its application to a particular part of the Project, as necessary) shall be rendered, temporarily or permanently, null and void, but the remainder of the Agreement shall remain in full force and effect to the extent allowed by law. In the event a court of competent jurisdiction finds any portion of the Agreement to be invalid, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

SECTION 18.2 NON-WAIVER

Nothing in this Agreement is intended to be or shall be construed as a waiver by any Union(s) of any prevailing wage determination or schedule that is applicable to their trade for any public work that has been or may be performed in the future on any work outside the scope of this Agreement. Nothing contained in this Agreement is intended to be or shall be construed as a waiver by any Union(s) of any more favorable term or condition of employment that may be contained in any collective bargaining agreement applicable to work outside the scope of this Agreement.

ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS

SECTION 19.1 CHANGES TO AREA CONTRACTS

Each Schedule A attached to this Agreement shall continue in full force and effect until the Contractor and/or Union parties to the area collective bargaining agreements which are the basis for the Schedule A notify the Owner and General Contractor in writing of the agreed upon changes in those agreements which are applicable to the Project, and their effective dates. Such changes shall only be effective to the extent consistent with this Agreement. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of area collective bargaining agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

SECTION 19.2 LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS

The Unions agree that there shall be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Project by any Local Union involved in the renegotiation of area local collective bargaining agreements, nor shall there be any lock-out on this Project affecting a Local Union during the course of such renegotiations.

ARTICLE 20 - WORKERS' COMPENSATION ADR

At the written option of the Contractor and with the written approval of the Hudson Valley Building Trades Council, all Local Unions, Contractors and sub-contractors working on this Project agree to be bound by the Collectively Bargained Workers Compensation Alternative Dispute Resolution Agreement (ADR Agreement) and to the ADR program set forth therein, by and between the Construction Industry Council of Westchester and the Hudson Valley, Inc., and the Building and Construction Trades Council of Westchester and Putnam County, New York, entered into on January 26, 2007, as amended

ARTICLE 21-HUDSON VALLEY BUILDING AND CONSTRUCTION TRADES LABOR MANAGEMENT ALLIANCE

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If not prohibited by law and there are no direct or additional costs to the Owner or Contractors, parties to this Agreement agree to participate in the Hudson Valley Building and Construction Trades Labor Management Alliance.
IN WITNESS WHEREOF the parties have caused this Agreement to be executed and effective as of the 1st day of February 2021.

FOR THE HUDSON VALLEY BUILDING AND CONSTRUCTION TRADES COUNCIL:

By: R. and 10 L. Todd Diorio, President

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BY: BY: Connectified Luis H. Rockriguez, President

FOR NEWBURGH ENLARGED CITY SCHOOL DISTRICT:

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No. 2179 P. 1

FOR THE LOCAL UNIONS:

INTERNATIONAL BROTHERHOOD OF BOILERMAKERS, IRON SHIP BUILDERS, BLACKSMITHS, FORGERS & HELPERS, DISTRICT NO. 5 BY: (Name/Title) **E-mail** Office No. or Call THE INTERNATIONAL UNION OF BRICKLAYERS AND ALLIED CRAFTWORKERS LOCAL 1 BY: (Name/Title) 845.565-8344 Office No, or Cell Anos (A) RAC. E-mail NORTH ATLANTIC STATES REGIONAL COUNCIL OF CARPENTERS LU# 279 BY (Name/Title) 845-763-2456 Office No. or Cell nasrce E-mail INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL NO.363 BY: BVI HGR. (Name/Title) SPILATTO) EGEWLUSUS. 845-216-1023 E-mail Office No. or Call INTERNATIONAL ASSOCIATION OF HEAT AND FROST INSULATORS AND ALLIED WORKERS LOCAL #91 Business Manger BY (Name/Title) AW191 @ Inselators. org -0500 E-mail Office No. or Cell

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FOR THE LOCAL UNIONS:

INTERNATIONAL BROTHERHOOD OF BOILERMAKERS, IRON SHIP BUILDERS, BLACKSMITHS, FORGERS & HELPERS, DISTRICT NO. 5

BY: Stan Inche Bm/s	CT .
(Name/Title) <u>boilermokers /occ/Se</u> venier.set E-mail	516-326-2500 Office No. or Cell
THE INTERNATIONAL UNION OF BRICKLAY	ERS AND ALLIED CRAFTWORKERS LOCAL
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NORTH ATLANTIC STATES REGIONAL COU	NCIL OF CARPENTERS LU# 279
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INTERNATIONAL BROTHERHODD OF ELEC NO.363 BY:	CTRICAL WORKERSLOCAL Bus HGR.
SPRATTO) FBEWLU363. ON 6 E-mail	<u>G45-216-7023</u> Office No. or Cell
INTERNATIONAL ASSOCIATION OF HEAT ALLIED WORKERS LOCAL #91	AND FROST INSULATORS AND
BY:(Name/Title)	

E-mail

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INTERNATIONAL ASSOCIATION OF BRIDGE, STRUCTURAL, ORNAMENTAL AND REINFORCING IRON WORKERS LOCAL NO. 417

hchael & Kada BY: (Name/Title) gator 417@ Verizon, net E-mail

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BY: R. Tood (Bu

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PLUMBERS, STEAMFITTERS AND SERVICE TECHNICIANS LOCAL UNION 373 BY: Relat amhasett

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INTERNATIONAL ASSOCIATION OF SHEET METAL, AIR, RAIL AND TRANSPORTATION WORKERS (SMART) LOCAL 38
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Union office esmart 38.0rg 845-278-6868 Eshall Office No. or Coll
ROAD SPRINKLER FITTERE LOCAL UNION 669
BY:
E-mail Office No. or Cell
TEAMSTERS UNION LOCAL 445
BY: John Clineman (Name/Title) Iclineman A) Teansters wow 445 845-857-4353 Office No. or Call
BY: (Name/Tille)
IVEC 138 Padicon 845-332 5380 B-mail
NEW YORK CITY DISTRICT. COUNCIL OF CARPENTERS LOCAL 740 M; I Wright
BY: Make Colours Vie Pastion Est (Namer 10) (Namer 10)
E-mail Office No. or Cell

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INTERNATIONAL ASSOCIATION OF SHEET METAL, AIR, RAIL AND TRANSPORTATION WORKERS (SMART) LOCAL 38

BY:	
(Name/Title)	
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BY Servill Like Busines	3 Agent
Klilley 66 16 amail. com	914-475-9158
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TRAMPTEDS INTON LOCAL ALC	
TERMOTERO UNION LOCAL 445	
(Name/Title)	=7.
B-mail	Office No. or Cell
INTERNATIONAL UNION OF ELEVATOR	CONSTRUCTORS
BY:	
(Name/Title)	
B-mail	Office No. or Cell
,	
W YORK CITY DISTRICT COUNCIL OF CARI	PENTERS LOCAL 740
(Name/Title)	
mail	Office No. or Cell

BRICKLAYERS AND ALLIED CRAFTS, TILE, MARBLE & TERAZZO UNION OF NEW YORK AND NEW JERSEY, LOZAL NO. 7

BA. BY: 01 (Name/Title) SVIRGARD BACLOCALT. COM

E-mail

917-134-1429

UNITED UNION OF ROOFERS, WATERPROOFERS AND ALLIED WORKERS LOCAL NO. 8

A. BY (Namo/Title) mer E-mail

294 1510 646

Office No. or Cell

SCHEDULE A - LOCAL COLLECTIVE BARGAINING AGREEMENTS

ARTICLES OF AGREEMENT between the INTERNATIONAL BROTHERHOOD OF BOILERMAKERS, IRON SHIP BUILDERS, BLACKSMITHS, FORGERS & HELPERS, AFL-CIO and THE FIRMS WHOSE SIGNATURES ARE AFFIXED HERETO January 1, 2018 -December 31,2020

AGREEMENT by and between THE CONSTRUCTION CONTRACTORS ASSOCIATION OF THE HUDSON VALLEY, BUILDING CONTRACTORS ASSOCIATION, AND THE MASON AND CONCRETE CONTRACTORS ASSOCIATION OF THE HUDSON VALLEY and THE INTERNATIONAL UNION OF BRICKLAYERS AND ALLIED CRAFTWORKERS LOCAL 1 NEW YORK June 1, 2017 - May 31, 2020

AGREEMENT between THE ASSOCIATIONS and the NORTH ATLANTIC STATE REGIONAL CONCIL OF CARPENTERS LOCAL UNION 279 May 1, 2019 - April 30, 2022

AGREEMENT by and between the HUDSON VALLEY CHAPTER, NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION and LOCAL UNION 363, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS April 1, 2018 - March 31, 2022

AGREEMENT by and between the NATIONAL ELEVATOR BARGAINING ASSOCIATION and the INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS July 9, 2017 -July 8, 2022

MEMORANDUM OF AGREEMENT by and between the WINDOW AND PLATE GLASS DEALERS ASSOCIATION and DISTRICT COUNCIL NO. 9 GLAXIERS LOCAL UNION #1087 May 1, 2017-April 30, 2023

AGREEMENT OF WORKING CONDITIONS between INDUSTRIAL INSULATION CONTRACTORS OF SOUTHERN NEW YORK and THE INTERNATIONAL ASSOCIATION OF HEAT AND FROST INSULATORS AND ALLIED WORKERS LOCAL #91 May 30, 2016 - May 26, 2019

AGREEMENT between FABRICATORS, ERECTORS AND REINFORCING CONTRACTORS ASSOCIATION OF THE HUDSON VALLEY, INC. and LOCAL UNION NO. 417 OF THE INTERNATIONAL ASSOCIATION OF BRIDGE, STRUCTURAL, ORNAMENTAL AND REINFORCING IRON WORKERS July 1, 2018-June 30, 2021

INDEPENDENT MILLWRIGHT AGREEMENT between NEW YORK CITY MILLWRIGHT CONTRACTORS ASSOCIATION and THE DISTRICT COUNCIL OF NEW YORK CITY AND VICINITY OF THE UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA and MILLWRIGHT LOCAL 740 July 1, 2011 - June 30, 2017

AGREEMENT between MASTER PAINTERS and DISTRICT COUNCIL NO. 9 May 1, 2014 - April 30,2020

RESILIENT FLOOR COVERERS AGREEMENT between THE GREATER NEW YORK FLOOR COVERERS ASSOCIATION, INC. and THE DISTRICT COUNCIL OF NEW YORK AND VICINITY OF THE UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA September 16, 2016 -June 30, 2024

AGREEMENT between UNITED UNION OF ROOFERS, WATERPROOFERS AND ALLIED WORKERS, LOCAL UNION NO. 8 and ROOFING & WATERPROOFING CONTRACTORS ASSOCIATION OF NEW YORK AND VICINITY July 1, 2019 - April 30, 2022

COMMERCIAL AGREEMENT between LOCAL UNION NO. 38 OF THE INTERNATIONAL ASSOCIATION OF SHEET METAL, AIR, RAIL AND TRANSPORTATION WORKERS (SMART) and SHEET METAL AND ROOFING CONTRACTORS' ASSOCIATION OF SOUTHEASTERN NEW YORK May 1, 2019-April 30, 2024

AGREEMENT between NATIONAL FIRE SPRINKLER ASSOCIATION, INC. and ROAD SPRINKLER FITTERS LOCAL UNION NO. 669 April 1, 2016-March 31, 2021

AGREEMENT HEAVY & HIGHWAY between TEAMSTERS UNION LOCAL 445, IBT, AFL-CIO and INDIVIDUAL EMPLOYERS May 1, 2017 - April 30, 2020

LOCAL UNION NO. 7 TILE, MARBLE, AND TERRAZZO, AFL-CIO OF NEW YORK AND NEW JERSEY AGREEMENT between the MARBLE INDUSTRY OF NEW YORK, INC. and THE MARBLE POLISHERS AND MAINTENANCE FINISHERS, LOCAL NO. 7 of the INTERNATIONAL UNION OF BRICKLAYERS AND ALLIED CRAFTSMEN July 1, 2018-June 30, 2022 AGREEMENT HEAVY & HIGHWAY between TRAMSTERS UNION LOCAL 445, IBT, AFL-CIO and INDIVIDUAL EMPLOYERS May 1, 2017 - April 30, 2020

AGREEMENT between THE GREATER NEW YORK AND NEW JERSEY TILE CONTRACTORS ASSOCIATION, INC. and THE TILE SETTERS AND TILE FINISHERS UNION OF NEW YORK AND NEW JERSEY, LOCAL UNION NO. 7 OF THE INTERNATIONAL UNIO OF BRICKLAYERS AND ALLIED CRAFTWORKERS June 2, 2017 June 2, 2021

AGREEMENT between the MOSAIC, TERRAZZO AND CHEMICAL PRODUCT DECORATIVE FINISHER MASONS WORKERS ASSOCIATION LOCAL NO. 7 OF NEW YORK NEW JERSEY & VICINITY INTERNATIONAL UNION OF BRICKLAYERS AND ALLIED CRAFTWORKERS and MARBLE TERRAZZO AND SPECIALTY CONTRACTORS ASSOCIATION, INC. July 1, 2017-June 30,2022

BUILDING AGREMENT between LABORERS' LOCAL UNION NO. 17 and CONSTRUCTION CONTRACTORS ASSOCIATION of the HUDSON VALLEY, INC. June 1, 2017 - May 31, 2020

HEAVY, HIGHWAY & SITE AGREEMENT between LABORERS' LOCAL UNION NO. 17, AGC OF AMERICA and CONSTRUCTION INDUSTRY COUNCIL May 1, 2017 - April 30, 2020

MECHANICAL CONTRACTORS ASSOCIATION OF ROCKLAND, ORANGE, COUNTIES and PLUMBERS & STEAMFITTERS LOCAL NO. 373 May 2019 - April 2021 SULLIVAN

AGREEMENT between INTERNATIONAL UNION OF NORTH AMERICA OPERATING ENGINEERS LOCAL UNION NO. 825 INDEPENDENT AGREEMENT July 1, 2019

SCHEDULE A COLLECTIVE BARGAINING AGREEMENT can be viewed by visiting the Hudson Valley Building and Construction Trades Council website: builditunion.org

Username: hudsonvalley Password: buildingtrades

IT SHALL BE THE REPSONSIBILITY OF THE CONTRACTOR TO VERIFY SCHEDULE A AGREEMENTS WITH THE RESPECTIVE UNIONS SIGNATORY TO THIS PROJECT LABOR AGREEMENT.

For questions about this Agreement or Schedule A contact:

Todd Diorio (845) 565-2737 or email idiorio555@aol.com President, HVBCTC

SCHEDULE B - LETTER OF ASSENT

The undersigned party confirms that it agrees to be a party to and be bound to the

Project Labor Agreement (hereinafter "Agreement" or "PLA")

entered into between "COUNCIL" and "NECSD", understands that such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms. The terms of the Agreement and its Schedules are hereby incorporated by reference herein.

The undersigned, as a Contractor or Subcontractor (hereinafter "Contractor") on

the Project known as the Capital Construction Bond Projects and located within the "NECSD" (hereinafter "Project"), for and in consideration of the award to it of a contract to perform work on said Project, and in further consideration of the mutual promises made in the PLA, a copy of which was received and is acknowledged, hereby:

(1) Accepts and agrees to be bound by the terms and conditions of the Project Labor Agreement, together with any and all schedules, amendments, and supplements now existing or which are later made thereto;

(2) Agrees to be bound by, and incorporates and adopts the legally established collective bargaining agreements (Schedule "A") and local trust agreements as referenced in the Project Labor Agreement and this letter of Assent for this Project;

(3) Authorizes the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor;

(4) Certifies that it has no commitments or agreements that would preclude its full and complete compliance with the terms and conditions of said Project Labor Agreement. The Contractor agrees to employ labor that can work in harmony with all other labor on the Project and shall require labor harmony from every lower tier subcontractor it engages to work on the Project. Labor harmony disputes/issues shall be subject to the Labor Management Committee's Pre-Job conference provisions;

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(5) Agrees to secure from any Contractor(s) (as defined in said Project Labor Agreement) which is or becomes a Subcontractor (of any tier) on the Project, a duly executed Agreement to be bound in from identical to this document;

(6) Agrees that it will not invoke the Most Favored Nations Clause that may be contained in any of its Collective Bargaining Agreements with affiliated unions as a result of the application of this Project Labor Agreement to this Project.

Dated:	Name of CM, Contractor
By: Authorized Officer & Title	Date:
Phone	
e-mail Employer EINEmplo	oyer NYS IU WC#
Sworn to befor day o	e me this f, 20

Notary Public

SCHEDULE C - ADMINISTRATION OF AGREEMENT; DESIGNEE

Name of Project:

The Owner shall name a Designee to administer this Agreement. The Designee shall be notified in the event any jurisdictional issue, grievance, or other matter concerning this PLA arises, and such Designee shall actively take part in the resolution of the issue. Any signatory Union may request the Designee's assistance in rectifying an issue.

The Designee's contact information is as follows:

<u>.</u>	(Office Phone)
	(Cell Phone)
	(Email)

_____(Signature)

_____(Print)

A copy of National Plan for the Settlement of Jurisdictional Disputes can be viewed by visiting the Hudson Valley Building and Construction Trades website: builditunion.org

Username: hudsonvalley

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Password: buildingtrades

13740.20

WAGE RATE REQUIREMENTS COVER

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SECTION 007343 WAGE RATE REQUIREMENTS COVER

PART 1 GENERAL

1.01 SUMMARY

- A. Wage rates shall apply as shown in the Prevailing Rate Schedule bound with this Section and prepared by the New York State Department of Labor:
- B. Case Number (Insert 10-digit number): 2021010012
- C. Published (Insert month, day, year): <u>September 24, 2021</u>
- D. County (Insert name of County): Orange
- E. The Contractor shall be responsible for completing one copy of Form PW-16. The identification number is in small print and is located in the bottom left corner of the form as part of the Prevailing Wage Rate package. Leave the "CONTRACTS NOT YET AWARDED" portion blank. Upon completion of the form, the Contractor shall mail the form to the Architect for record keeping and forwarding to the New York State Department of Labor.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

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SECTION 012100 ALLOWANCES

PART 1 GENERAL

1.01 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 the Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Quantity allowances.
 - 4. Contingency allowances.
- C. Related Sections:
 - 1. Division 01 Section "Unit Prices" for procedures for using unit prices.

1.02 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.

1.03 ACTION SUBMITTALS

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

1.04 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.

1.05 COORDINATION

A. Coordinate allowance items with other portions of the Work.

1.06 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, for work ordered by Owner under the contingency allowance is included in the Contract Sum and is not part of the Allowance.
- C. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 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.

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3.02 GENERAL CONSTRUCTION SCHEDULE OF ALLOWANCES

- A. GC-1: Contingency Allowance: Include in the Base Bid an Allowance of **\$ 50,000** for use according to the Owners instructions."
 - 1. Contractor overhead and profit is provided in the Base Bid.

3.03 MECHANICAL CONSTRUCTION SCHEDULE OF ALLOWANCES

- A. MC-1: Contingency Allowance: Include in the Base Bid an Allowance of **\$ 25,000** for use according to the Owners instructions."
 - 1. Contractor overhead and profit is provided in the Base Bid.

3.04 PLUMBING CONSTRUCTION SCHEDULE OF ALLOWANCES

- A. PC-1: Contingency Allowance: Include in the Base Bid an Allowance of **\$ 10,000 for u**se according to the Owners instructions."
 - 1. Contractor overhead and profit is provided in the Base Bid.

3.05 ELECTRICAL CONSTRUCTION SCHEDULE OF ALLOWANCES

- A. EC-1: Contingency Allowance: Include in the Base Bid an Allowance of **\$ 15,000** for use according to the Owners instructions."
 - 1. Contractor overhead and profit is provided in the Base Bid.

3.06 SITE CONSTRUCTION SCHEDULE OF ALLOWANCES

- A. SC-1: Contingency Allowance: Include in the Base Bid an Allowance of **\$ 15,000** for use according to the Owners instructions."
 - 1. Contractor overhead and profit is provided in the Base Bid.

SECTION 012200 UNIT PRICES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Sections:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Division 01 Section "Allowances" for procedures in using Unit Prices with Allowances

1.02 DEFINITIONS

A. Unit price is 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.

1.03 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections indicated in the "Schedule of Unit Prices" 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 APPLICABLE)

PART 3 EXECUTION

3.01 SCHEDULE OF UNIT PRICES

- A. GENERAL CONSTRUCTION
 - 1. Unit Price No. GC-1: Ceiling Replacement.
 - a. Description: Replace 2x4 acoustical lay in ceiling tile.
 - b. Unit of Measurement: Per 50 Square Feet.
 - 2. Unit Price No. GC-2: Abatement of Asbestos containing pipe fitting insulation.
 - a. Description: Provide all labor, materials, and equipment necessary, including tents to remove pipe fitting insulation.
 - b. Unit of Measurement: Per fitting.
 - 3. Unit Price No. GC-3: Abatement of asbestos containing linear pipe insulation.
 - a. Description: Provide all labor, materials, and equipment necessary, including tents to remove linear pipe insulation.
 - b. Unit of Measurement: Linear foot.

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SECTION 012300 ALTERNATES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.02 DEFINITIONS

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

1.03 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 SCHEDULE OF ALTERNATES

- A. GENERAL CONSTRUCTION
 - 1. Alternate No. GC-1: NURSE'S OFFICE
 - a. Alternate: General Construction Work associated with relocating the Nurse's Office as shown on the drawings and as specified.
 - 2. Alternate No. GC-2: CAFETERIA SOUND BAFFLES
 - a. Alternate: General Construction Work associated with the Cafeteria sound baffles as shown on the drawings and as specified.
 - 3. Alternate No. GC-3: CASEWORK ON STAGE
 - a. Alternate: General Construction Work associated with Casework located on the State as shown on the drawings and as specified.
 - 4. Alternate No. GC-4: TILE BACKSPLASH
 - a. Alternate: General Construction Work associated with the tile backsplash at casework as shown on the drawings and as specified.
 - 5. Alternate No. GC-5: DIGITAL WALL GRAPHICS
 - a. Alternate: General Construction Work associated with digital wall graphics as shown on the drawings and as specified.
 - 6. Alternate No. GC-6: ALTERNATE FLOOR PATTERNS
 - a. Alternate: General Construction Work associated with providing alternate floor patterns as shown on the drawings and as specified.

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B. MECHANICAL CONSTRUCTION

- 1. Alternate No. MC-1: NURSE'S OFFICE
 - a. Alternate: Mechanical Construction Work associated with relocating the Nurse's Office as shown on the drawings and as specified.
- C. PLUMBING CONSTRUCTION
 - 1. Alternate No. PC-1: NURSE'S OFFICE
 - a. Alternate: Plumbing Construction Work associated with relocating the Nurse's Office as shown on the drawings and as specified.
- D. ELECTRICAL CONSTRUCTION
 - 1. Alternate No. EC-1: NURSE'S OFFICE
 - a. Alternate: Electrical Construction Work associated with relocating the Nurse's Office as shown on the drawings and as specified.
 - 2. Alternate No. EC-2: CAFETERIA LIGHTING
 - a. Alternate: Electrical Construction Work associated with the Cafeteria lighting as shown on the drawings and as specified.
 - 3. Alternate No. EC-3: SITE LIGHTING
 - a. Alternate: Electrical Construction Work associated with the site lighting as shown on the drawings and as specified.
- E. SITE WORK CONSTRUCTION
 - 1. Alternate No. SC-1: ADDITIONAL CONCRETE WALKWAY
 - a. Alternate: Site Construction Work associated with providing additional concrete walkway at the Addition as shown on the drawings and as specified.

SECTION 012500 SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 GENERAL

- A. Should the Contractor desire to substitute other articles, materials, apparatus, products or processes than those specified or approved as equal, the Contractor shall apply to the Architect in writing for approval of such substitution. It should be noted that the bid shall not be based on a substituted article, material, apparatus, product or process. With the application shall be furnished such information as required by the Architect to demonstrate that the article, material, apparatus, product or process he wishes to use is the equivalent of that specified in quality, finish, design, efficiency and durability and has been elsewhere demonstrated to be equally serviceable for the purpose for which it is intended. The Contractor shall set forth the reasons for desiring to make the substitution and shall further state what difference, if any, will be made in the construction schedule and the contract price for such substitution should it be accepted; it being the intent hereunder that any savings shall accrue to the benefit of the Owner.
- B. The Architect shall reject any such desired substitution as not being specifically named in the contract, or if he shall determine that the adjustment in price in favor of the Owner is insufficient, the Contractor shall immediately proceed to furnish the designated article, material, apparatus, product or process.
- C. Request for substitutes shall conform to the requirements of this Article.
- D. Requests for substitutions shall, include full information concerning differences in cost, and any savings in cost resulting from such substitutions shall be passed on to the Owner.
- E. Requests for utilization of substitutes will be reviewed during the course of the project. The impact on the project and the timeliness of submission will be of key consideration.
- F. The approval of utilization of a substitute is subject to the sole and final discretion of the Architect.

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Sections:
 - 1. Division 01 Section "Allowances" for products selected under an allowance.
 - 2. Division 01 Section "Alternates" for products selected under an alternate.
 - 3. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
 - 4. Division 01 Section "Submittals" for submittal procedures.
 - 5. Divisions 02 through 49 Sections for specific requirements and limitations for substitutions.

1.03 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.
 - 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.
- B. Substitute Items (Or Equal): If in Architect/Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item it will be considered a proposed substitute item.

1.04 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

- 1. Substitution Request Form: Use form provided in Project Manual.
- 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. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses 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.
 - I. 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.
 - n. See additional requirements in Article 2.3 DETAILED SUBSTITUTION PROCEDURES
- 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within five days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 10 days of receipt of request, or five days of receipt of additional information or documentation, whichever is later.
 - 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.

1.05 QUALITY ASSURANCE

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

PART 2 PRODUCTS

2.01 SUBSTITUTION PROCEDURES (GENERAL)

A. Conditions: After the 'Notice of Award" and prior to the Contractor entering into a Formal Contract with the Owner, the 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:

- 1. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- 2. Substitution results in substantial cost savings to the Owner or substantial performance improvements.
- 3. Substitution request is fully documented and properly submitted.
- 4. Requested substitution will not adversely affect Contractor's construction schedule.
- 5. Requested substitution has received necessary approvals of authorities having jurisdiction.
- 6. Requested substitution is compatible with other portions of the Work.
- 7. Requested substitution has been coordinated with other portions of the Work.
- 8. Requested substitution provides specified warranty.
- 9. 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.
- 10. The substation is submitted in compliance with Article 2.3 DETAILED SUBSTITUTION PROCEDURES
- B. If the Contractor does not present 'Substitutions" in the time frame noted above any future requests to substitute products will not be considered, unless the substitution is for cause.
- C. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

2.02 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 20 days prior to time required for preparation and review of related submittals.
 - 1. Architect will consider Contractor's request for substitution when the following conditions are present.
 - a. The specified product is not available
 - b. The specified product cannot be delivered in the time frame required under the Project Schedule.
 - 2. 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 is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. 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 if received within 60 days after the Notice of Award and based on the following
 - 1. The proposed product substitution will result in a significant cost savings to the Owner.
 - 2. The proposed product has substantial performance improvements.
 - 3. The proposed product can be provided much earlier in the schedule enhancing the project completion date.

4. The proposed product warranty is superior to the specified item.

2.03 DETAILED SUBSTITUTION REVIEW PROCEDURES

- A. The Architect in addition to the requirements listed above will require compliance with the following requirements and procedures.
 - 1. Requests for approval of substitutions will be received and considered from Prime Contractors only and not from manufacturers, suppliers, Subcontractors, or other third parties.
 - 2. If the materials and equipment submitted are offered as substitutions to the Contract Documents or approved equal, the Contractor shall advise the Owner and the Architect of the requested substitutions and comply with the requirements hereinafter specified in this Article.
 - 3. Where the acceptability of substitution is conditioned upon a record of and the proposed substitution does not fulfill this requirement, the Architect, at the Architect's sole discretion, may accept the substitution if the Contractor provides a bond or cash deposit which guarantees replacement at no cost to the Owner for any failure occurring within a specified time. The substitution item must meet all other technical requirements contained in the Specification.
 - 4. The Contractor shall furnish such information as required by the Architect to demonstrate that the equal article, material, apparatus, product or process is the equivalent of that specified in quality, finish, design, efficiency and durability and has been elsewhere demonstrated to be equally serviceable for the purpose for which it is intended and/or that it offers substantial benefits to the Owner in saving of time and/or cost. The Contractor shall set forth the reasons for desiring to make this substitution.
 - 5. Contractor shall submit:
 - a. For each proposed request for approved substitute sufficient details, complete descriptive literature and performance data together with samples of the materials, where feasible, to enable the Architect to determine if the proposed request for approval should be granted, including manufacturer's brand or trade names, model numbers, description of specification of item, performance data, test reports, samples, history of service, and other data as applicable.
 - b. Certified tests, where applicable, by an independent laboratory attesting to the performance of the substitute.
 - c. A list of installations where the proposed substitute equipment or materials is performing under similar conditions as specified.
 - d. A list of installations where the proposed substitute equipment or materials is performing under similar conditions as specified.
 - 6. Where the approval of a substitute requires revision or redesign of any part of Work, including that of other Contracts, all such revision and redesign, and all new drawings and details required therefore, shall be provided by the Contractor at its own cost and expense, and shall be subject to the approval of the Architect.
 - 7. In the event that the Architect is required to provide additional services, then the Architect's charges for such additional services shall be paid by the Contractor to the Owner.
 - 8. Any modifications in the Work required under other contracts to accommodate the changed design will be incorporated in the appropriate contracts and any resulting increases in contract prices will be charged to the Contractor by the Owner who initiated the changed design.
 - 9. In all cases, the Architect shall be the judge as to whether a proposed substitute is to be approved. The Contractor shall be bound by the Architect's decision. No substitute items shall be used in the Work without written approval of the Architect.
 - 10. In making request for approval of substitute, Contractor represents that:
 - a. Contractor has investigated proposed substitute and determined that it is equal to or superior in all respects to the product, manufacturer or method specified or offers other specified advantages to the Owner.
 - b. Contractor will provide the same or better warranties or bonds for proposed substitute as for product, manufacturer or method specified.
 - c. Contractor waives all claims for additional costs or extension of time related to proposed substitute that subsequently may become apparent.

- d. Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Architect in considering a substitute proposed by the Contractor or by reason of failure of the Architect to approve a substitute proposed by the Contractor. Any delays arising out of consideration, approval, or utilization of a substitute shall be the sole responsibility of the Contractor requesting the substitute and it shall arrange its operations to make up the time lost.
- 11. Proposed substitute will not be accepted if:
 - a. Acceptance will require substantial revision of Contract Documents.
 - b. Acceptance will substantially change design concepts or Technical Specifications.
 - c. Acceptance will delay completion of the Work, or the Work of other Contractors.
 - d. If the Substitute item is not accompanied by formal request for approval of substitute from Contractor.
- 12. The Architect reserves the right to disapprove, for aesthetic reasons, any material or equipment on the basis of design or color considerations alone, without prejudice to the quality of the material or equipment, if the manufacturer cannot meet the required colors or design.
- 13. All requests for approval of substitutes of materials or other changes from the contract requirements shall be accompanied by an itemized list of all other items affected by such substitution or change. The Architect shall have the right, if such is not done, to rescind any approvals for substitutions and to order such Work removed and replaced with Work conforming to the specified requirements of the contract, all at the Contractor's expense, or to assess all additional costs resulting from the substitution to the Contractor.
- 14. Approval of a substitute will not relieve Contractor from the requirement to submit Shop Drawings or any of the provisions of the Contract Documents.
- 15. In the event that the Architect is required to provide additional services as a result of a request for approval of a substitute results in changes by the Contractor in dimension, weight, power requirements, etc., of the equipment and accessories furnished, or as a result of Contractor's errors, omissions or failure to conform to the requirements of the Contract Documents or if the Architect is required to examine and evaluate any changes proposed by the Contractor solely for the convenience of the Contractor, or for evaluation of deviations from Contract Documents, then the Architect's charges in connection with such additional services shall be paid by the Contractor.
- 16. Structural design shown on the Drawings is based upon the configuration of and maximum loading for major items of equipment as indicated on the Drawings and as specified. If the substituted equipment furnished differs from said features, the Contractor shall pay to the Owner all costs of redesign and for any construction changes required to accommodate the equipment furnished, including the Architect's charges in connection therewith.
- B. The Contractor shall respond to required submittals with complete information and with a degree of accuracy to achieve approvals within two (2) submissions. All costs to the Architect involved with subsequent submissions of Shop Drawings, Samples or other items requiring approval, will be paid by the Contractor to the Owner, by deducting such costs from payments due for Work completed. In the event an approved item is requested by the Contractor to be changed or substituted for, all costs involved in the reviewing and approval process will likewise be back charged to the Contractor unless determined by the Architect that the need for such substitution and/or deviation from Contract Documents is beyond the control of the Contractor.

PART 3 EXECUTION (NOT APPLICABLE)

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SECTION 012519 EQUIVALENTS

PART 1 GENERAL

1.01 SUMMARY:

A. Requirements set forth herein pertain to products specified in divisions included in project manual.

1.02 DEFINITIONS:

- A. For the purpose of this contract, the words "similar", "equal to", "or equal", "equivalent" and such other words of similar content and meaning, shall be deemed to mean similar and equal to one of named products.
- B. For the purpose of bidding documents, the word "products" shall be deemed to include the words "articles", "materials", "items", "equipment" and "methods". Whenever in contract documents one or more products are specified, words "similar, equivalent, and equal to" shall be deemed inserted.

1.03 EQUIVALENTS:

- A. Where, in these specifications or on drawings, certain kinds, types, brands, or manufacturers of materials are named, they shall be regarded as required standard of quality. Where two or more are named these are presumed to be equal, and Contractor may select one of those items.
- B. If Contractor desires to use any kind, type, brand, or manufacturer of material other than those named in specification, he may submit the request for approval to the Architect well in advance of the bid date.
- C. Requests for approval of proposed equivalents will be received by Architect only from the Contractor.
- D. If the Architect approves a proposed equivalent prior to receipt of Bids, such approval will be set forth in an Addendum.
- E. After the bid opening the apparent low bidder or bidders will be notified by the Architect or Owner and shall submit to the Architect in writing, within ten (10) calendar days what equivalent kind, type, brand, or manufacture is included in bid in lieu of specified items. No equivalents will be considered after this submission.
- F. Contractor shall have burden of proving, at Contractor's own cost and expense, to satisfaction of Owner/Architect, that proposed product is similar and equal to named product. In making such determination Owner/Architect will be sole judge of objective and appearance criteria that proposed product must meet in order for it to be approved.
 - Supporting data on equivalency is responsibility of bidder. For each equivalent to base specification, included in products list, submit information describing in specific detail
 - a. Wherein it differs from quality and performance required by base specification.
 - b. Changes required in other elements of work because of equivalent.
 - c. Effect on construction schedule.
 - d. Any required license fees or royalties.
 - e. Availability of maintenance service, and source of replacement materials.
 - f. Such other information as may be required by Owner.
- G. Owner, through Architect, shall be judge of acceptability of proposed equivalents. Risk of whether bid equivalents will be accepted is borne by Contractor.

1.04 CONTRACTOR'S REPRESENTATION:

- A. Submission of an equivalent product and/or material constitutes a representation that Contractor:
 - 1. Has investigated proposed product and determined it is equal to or superior in all respects to that specified.
 - 2. Will provide same warranties or bonds for equivalent as for product specified.

- 3. Will coordinate installation of an accepted equivalent into work and make such other changes as may be required to make work complete in all respects.
- 4. Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.
- 5. Will provide, at own cost and expense, any different quantity and/or arrangement of ductwork, piping, wiring, conduit or any part of work from that specified, detailed or indicated in Contract Documents if required for proper installation of an approved equivalent.
- 6. Will provide, at own cost and expense, all such revision and redesign and all new drawings and details required by Architect for approval if proposed equivalent product requires a revision or redesign of any part of work covered by this contract.

1.05 EQUIVALENT CERTIFICATION:

A. Contractor must sign the "Equivalent Certification" following this specification section and deliver it to the Architect along with a complete list of proposed equivalents within ten (10) calendar days after notification from the Architect or Owner. This is mandatory and must be done prior to award of contracts.

I. EQUIVALENT CERTIFICATION

1.

I.

I. REVIEWED MATERIAL:

AIA A701-2018 Instructions to Bidders AIA A201-2017 or A232(CMa) General Conditions of the Contract Specification Section: 012519 - Equivalents Specification Section: 012500 - Substitution Procedures Specification Section: 016000 - Product Requirements

1.

I. CHECK THE FOLLOWING THAT APPLIES:

No equivalents are proposed.

Proposed equivalents are attached with supporting data as per Section 012519.

I.

I. ALL EQUIVALENTS ARE HEREBY PRESENTED TO ARCHITECT AND OWNER FOR APPROVAL. NO FUTURE EQUIVALENTS WILL BE CONSIDERED.

Contractor Signature: Printed Name of Contractor: Date:

1.

1.

Signature of Reviewer:	
Printed Name of Reviewer:	
Approved as Noted Date:	

1.

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SECTION 012600 CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.02 NO COST CHANGES IN THE WORK

A. Architect will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on the Information Bulletin bound in the Project Forms Section of Project Manual.

1.03 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect through Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to the Construction Manager.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times.
 - 6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.04 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final

measurement of work-in-place. 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.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 5 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 5 days after such authorization.
 - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
 - No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.05 ADMINISTRATIVE CHANGE ORDERS

- A. Adjustment from Allowances: Refer to Division 01 Section "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Adjustments from Unit Prices: Refer to Division 01 Section "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit price work.

1.06 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect through the Construction Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701-Change **Order**.

1.07 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect through the Construction Manager may issue a Construction Change Directive on AIA Document G714.
 - 1. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - a. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
 - 2. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - a. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

SECTION 012900 PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections:
 - 1. Division 01 Section "Allowances" for requirements governing the handling and processing of allowances.
 - 2. Division 01 Section "Unit Prices" for requirements governing the use of unit prices.
 - 3. Division 01 Section "Contract Modification Procedures" for procedures for handling changes to the Contract.
 - 4. Division 01 Section "Construction Progress Documentation" for requirements governing the preparation and submittal of the Contractor's construction schedule.
 - 5. Division 01 Section "Submittal Procedures" for requirements governing the preparation and submittal of the submittal schedule.

1.02 SCHEDULE OF VALUES

- A. Schedule of Values: Furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
- B. Coordination: Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - 1. Application for Payment forms with continuation sheets. (AIA G702 and G703)
 - 2. Submittal schedule.
 - 3. Submit the schedule of values to Architect **through Construction Manager at earl**iest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect and Construction Manager.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Change Orders (numbers) that affect value.
 - d. Dollar value of the following, as a percentage of the Contract Sum to nearest onehundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports.
 - 4. For New York State School facilities projects, each school building shall be separately itemized and detailed.
 - 5. The following line items must be included on the continuation sheet.
 - a. Project Bonds and Insurances
 - b. Mobilization
 - c. Shop Drawings
 - d. Project Meetings

- e. Temporary Heat (where applicable)
- f. Progress Cleaning
- g. Lawn and Tree Watering (where applicable to establish new lawns and trees)
- h. Punch List
- i. Final Cleaning
- j. Close Out documents and Warranties
- 6. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- 7. Submit draft of AIA Document G703 Continuation Sheets.
- 8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
- 9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
- 10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.03 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and Construction Manager and paid for by Owner.
 - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
 - 1. Submit draft copy of Application for Payment [five] days prior to due date for review by Architect. (Work to be projected out to the end of the pay period)].
- C. Application for Payment Forms: Use AIA Document G702/CMa and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 - 4. The OWNER shall retain five percent (5%) of the amount due on each Application for both the work completed and materials stored, unless stated otherwise in Owner Contractor Agreement. The OWNER reserves the right to retain a greater percentage in the event the CONTRACTOR fails to make satisfactory progress or in the event there is other specific cause for greater withholding.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
- Provide copies of payroll records (including subcontractors) that are signed and notarized, F. documenting compliance with prevailing wage requirements.
 - Per New York State Workman's Compensation Board copies of all payroll records for 1. all out of state contractors shall be retained on the worksite for inspection is required by the New York State Dept. of Labor.
- Transmittal: Submit four signed and notarized original copies of each Application for G. Payment to Construction Manager by a method ensuring receipt. If required, include waivers of lien and similar attachments one copy.
- Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of Η. mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 - Submit partial waivers on each item for amount requested in previous application, after 1. deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit conditional final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede submittal of first Application for Payment include the following:
 - List of Substitutions 1.
 - 2. Contractor or Notice to Proceed.
 - Performance and Payment bonds. 3.
 - Liability, Auto, and Umbrella Insurance. 4.
 - Worker Compensation certificates. 5.
 - Proposed schedule of values for approval. 6.
- Initial Application for Payment: Administrative actions and submittals that must coincide J. with submittal of first Application for Payment include the following:
 - Approved Schedule of values. 1.
 - 2. List of subcontractors.
 - Contractors Safety Program. 3.
 - Contractor's construction schedule (preliminary if not final). 4.
 - 5. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 - 6. Submittal schedule (preliminary if not final).
 - First Payment WILL NOT be processed without a Submittal Schedule. а
 - 7. Emergency Contacts List.
 - Certified Payroll. 8
 - 9. Schedule of unit prices.
 - 10. List of Contractor's staff assignments.
 - 11. List of Contractor's principal consultants.
 - 12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 - 13. Minutes or report of preconstruction conference.
- Application for Payment at Substantial Completion: After issuing the Certificate of K. Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 - Administrative actions and submittals that shall precede or coincide with this 1. application include:
 - a. Occupancy permits and similar approvals
 - List of incomplete Work, recognized as exceptions to Architect's Certificate of b. Substantial Completion
 - **Record Drawings and Specifications** C.
 - **Operations and Maintenance Manuals** d.

- e. Maintenance Instructions and Training
- f. Start-up performance reports
- g. Test/adjust/balance records
- h. Warranties (guarantees) and maintenance agreements
- i. Final cleaning
- j. Change-over information related to Owner's occupancy, use, operation and maintenance
- k. Application for reduction of retainage and consent of surety
- I. Advice on shifting insurance coverages
- 2. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
- 3. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- L. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 - 1. Ensure that incomplete Work is not accepted and will be completed without undue delay.
 - 2. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 - 3. Evidence of completion of Project closeout requirements.
 - 4. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 - 5. Updated final statement, accounting for final changes to the Contract Sum.
 - 6. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 - 7. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 - 8. AIA Document G707, "Consent of Surety to Final Payment."
 - 9. Evidence that all claims have been settled.
 - 10. Final liquidated damages settlement statement.
 - 11. Removal of temporary facilities and services.
 - 12. Removal of surplus materials, rubbish, and similar elements.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 012900

SECTION 013100 PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Coordination drawings.
 - 4. Requests for Information (RFIs).
 - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Sections:
 - 1. Division 01 Section " Summary" for Project Information and phasing requirements
 - 2. Division 01 Section "Multiple Contract Summary" for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
 - 3. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 4. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 5. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.02 DEFINITIONS

A. RFI: Request from Owner, Construction Manager, Architect, or Contractor seeking information from each other.

1.03 INFORMATIONAL SUBMITTALS

- A. Use the Architects Newforma Info Exchange when up loading Submittals.
- B. Subcontract list is required by AIA Document A201 to be submitted as soon as practical prior to award of the Contract. Coordinate with submittal requirements for subcontract list in Procurement Requirements and Contracting Requirements if any.
- C. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use form provided in specification section 006000 of the Project Manual Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- D. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of listing in project meeting room, or field office, on Project Web site, and by each field telephone. Keep list current.

1.04 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

- 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
- 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
- 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities **and activities of other contractors** to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.
 - 9. Project closeout activities.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.05 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.

- d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
- f. Indicate required installation sequences.
- g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
 - 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work. Provide required information for work sequence to interface with the installation work.
 - 2. Plenum Space: Indicate sub framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 - 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
 - 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 - 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 - 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 - 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inch diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire alarm locations.
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 - 8. Review areas for required access and indicate the need for access doors for access to shutoffs electrical boxes Etc.
 - 9. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility. If the Architect determines that the coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Architect will so inform the Contractor, who shall make changes as directed and resubmit.
 - a. Failure to provide the required coordination drawings as required by this specification section may result in withholding a portion of the Contractor payment requests until such coordination drawings are received.
 - 10. Coordination Drawing Prints: Prepare and submit coordination drawing prints in accordance with requirements of Division 01 Section "Submittal Procedures."
- C. Architect provides PDF Files:

- 1. The Architect will provide digital PDF's of Contract Drawings for the purpose of producing coordination drawings for a Handling Fee of \$100 for each floor plan.
 - a. Contract documents are graphic representations of approximate locations of materials. Therefore, information contained within these files should not be assumed to be accurate and users of the Files accept full responsibility for verifying the accuracy and completeness of the Files with field conditions and the contract documents.

1.06 KEY PERSONNEL

- A. Key Personnel Names: Within 5 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
 - 1. Post copies of list in project meeting room, or temporary office, and by field telephone.

1.07 REQUESTS FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Do not submit an RFI if information is readily available in the contract documents. Verify by contacting and questioning the Architect prior to submitting an RFI.
 - a. Architect will return with no response RFI's where information is available to the contractor as indicated on the Contract Documents.
 - 2. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 - 3. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.
 - 2. Project number.
 - 3. Date.
 - 4. Name of Contractor.
 - 5. Name of Architect and Construction Manager.
 - 6. RFI number, numbered sequentially.
 - 7. RFI subject.
 - 8. Specification Section number and title and related paragraphs, as appropriate.
 - 9. Drawing number and detail references, as appropriate.
 - 10. Field dimensions and conditions, as appropriate.
 - 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 12. Contractor's signature.
 - 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI's sent without the required content information will not be considered a formal RFI.
- D. RFI Forms: Form provided in specification section 006000 of the Project Manual.
- E. Architect's and Construction Manager's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.
 - 1. The following RFIs will be refused without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.

- c. Requests for information already indicated in the Contract Documents.
- d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
- f. Incomplete RFIs or inaccurately prepared RFIs.
- 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
- Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within 10 days of receipt of the RFI response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use software log that is part of Project Web site. Include the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect and Construction Manager.
 - 4. RFI number including RFIs that were dropped and not submitted.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's and Construction Manager's response was received.
 - 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 - 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
- G. On receipt of Architect's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.
 - 1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 - 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.08 PROJECT MEETINGS

- A. General: Construction Manager will schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times. All Prime Contractors are required to attend Project Meetings.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager and Architect, within [three] days of the meeting.
- B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 - 1. Conduct the conference to review responsibilities and personnel assignments.
 - 2. Attendees: Authorized representatives of Owner, Construction Manager Architect, and their consultants; Contractors and their superintendents; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to decide matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect progress, including the following:

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- a. Tentative construction schedule.
- b. Phasing.
- c. Critical work sequencing and long-lead items.
- d. Designation of key personnel and their duties.
- e. Procedures for project communications.
- f. Procedures for processing field decisions and Change Orders.
- g. Procedures for RFIs.
- h. Testing and inspecting requirements.
- i. Procedures for processing Applications for Payment.
- j. Distribution of the Contract Documents.
- k. Submittal procedures using Newforma Info Exchange.
- I. Preparation and updating of record documents.
- m. Use of the premises and existing building.
- n. Work restrictions.
- o. Working hours.
- p. Owner's occupancy requirements and restrictions.
- q. Responsibility for temporary facilities and controls.
- r. Procedures for moisture and mold control.
- s. Procedures for disruptions and shutdowns.
- t. Construction waste management and recycling.
- u. Parking availability.
- v. Office, work, and storage areas.
- w. Equipment deliveries and priorities.
- x. First aid.
- y. Security.
- z. Progress cleaning.
- 4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Construction Manager of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - I. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.

- u. Installation procedures.
- v. Coordination with other work.
- w. Required performance results.
- x. Protection of adjacent work.
- y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
- 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
- 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings:Construction Manager will conduct progress meetings at regular intervals.
 - 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Required Attendees: In addition to representatives of Owner Construction Manager, and Architect, each Prime contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to decide matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Status of correction of deficient items.
 - 11) Field observations.
 - 12) Status of RFIs.
 - 13) Status of proposal requests.
 - 14) Pending changes.
 - 15) Status of Change Orders.
 - 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 013100

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SECTION 013200 CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Start-up construction schedule.
 - 2. Contractor's construction schedule.
 - 3. Daily construction reports.
 - 4. Field condition reports.
 - 5. Special reports.
- B. Related Sections:
 - 1. Division 00 Section "Preliminary Schedules" for anticipated construction schedule provided for Bidding Proposals.
 - 2. Division 01 Section "Multiple Contract Summary" for preparing a combined Contractor's Construction Schedule.
 - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
 - 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.02 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format[s]:
 - 1. PDF electronic file.
- B. Start-up construction schedule.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- D. Daily Construction Reports: Submit at weekly intervals.
- E. Field Condition Reports: Submit at time of discovery of differing conditions.
- F. Special Reports: Submit at time of unusual event.

1.03 QUALITY ASSURANCE

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Verify availability of qualified personnel needed to develop and update schedule.
 - 3. Discuss phasing, work stages, area separations, interim milestones, and partial Owner occupancy.
 - 4. Review delivery dates for Owner-furnished products.
 - 5. Review schedule for work of Owner's separate contracts.
 - 6. Review time required for review of submittals and resubmittals.
 - 7. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 8. Review time required for completion and startup procedures.
 - 9. Review and finalize list of construction activities to be included in schedule.
 - 10. Review submittal requirements and procedures.
 - 11. Review procedures for updating schedule.

1.04 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.

2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 PRODUCTS

2.01 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice of Award to date of final completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities and days
 - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
 - 4. Startup and Testing Time: Include not less than 15 days for startup and testing.
 - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
 - 6. Punch List and Final Completion: Include not more than 30 days for punch list and final completion.
- C. Schedule Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
 - 1. Phasing: Arrange list of activities on schedule by phase.
 - 2. Work under More Than One Contract: Include a separate activity for each contract.
 - 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 - 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 - 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 - 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 - 7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Submittals.
 - b. Purchases.
 - c. Mockups.
 - d. Sample testing.
 - e. Deliveries.
 - f. Installation.
 - g. Tests and inspections.
 - h. Adjusting.
 - i. Startup and placement into final use and operation.

- 8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion
- E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
 - 1. Unresolved issues.
 - 2. Unanswered RFIs.
 - 3. Rejected or unreturned submittals.
 - 4. Notations on returned submittals.
- F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
- G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
 - 1. Use Microsoft Project, for Windows 10 operating system.

2.02 START-UP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit start-up horizontal bar-chart-type construction schedule within seven days of date established for approval. Schedule to start from the Notice of Award.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: From the approved Bar Chart Schedule submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within [30] [or insert number] days Base schedule on the approved startup construction schedule and additional information received since the start of Project.

2.04 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of Prime contractors at Project site.
 - 2. List of subcontractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Equipment at Project site.
 - 5. Material deliveries.
 - 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 - 7. Accidents.
 - 8. Meetings and significant decisions.
 - 9. Unusual events (refer to special reports).
 - 10. Stoppages, delays, shortages, and losses.
 - 11. Meter readings and similar recordings.
 - 12. Emergency procedures.
 - 13. Orders and requests of authorities having jurisdiction.
 - 14. Change Orders received and implemented.

- 15. Construction Change Directives received and implemented.
- 16. Services connected and disconnected.
- 17. Equipment or system tests and startups.
- 18. Partial completions and occupancies.
- 19. Substantial Completions authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.05 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules 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 performance of construction activities.

END OF SECTION 013200

SECTION 013300 SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. This specification describes the procedures for submission of submittals and shop drawings using Newforma Info Exchange.
 - The Contractor will be required to use the Newforma Info Exchange for the transfer of Submittals, Shop Drawings and RFI's. There will be **no exceptions** to this requirement. The contractor will be given a login and password free of charge. For more information follow the procedure below.
 - a. Information and instructions for use are available for review by the contractor by contacting CPL. The Contractor is to provide an email address for the file to be sent. A PDF file will be emailed to the requesting contractor.
- C. Related Requirements:
 - 1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
 - 3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 4. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.
 - 5. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
 - 6. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
 - 7. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 8. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 9. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.02 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.03 SUBMITTAL GENERAL ADMINISTRATIVE REQUIREMENTS

A. The Contractor shall prepare a Submittal Log containing the information required to be submitted under the Submittal article from each respective Specification Section. With each item listed the Contractor shall provide anticipated dates for submission to the Architect. The Architect will review and accept or request that corrections be made for subsequent acceptance. This acceptance will constitute an approval for the submittal, shop drawings and sample submissions to commence. No Submittals or Shop Drawings will be reviewed by the Architect until an approved Submittal Schedule is in place.

- B. The contractor shall prepare expected submittals in Newforma that correspond to all submittals listed on the submittal schedule at the time of submission of the submittal log. These expected submittals are to follow the naming conventions laid out in section "1.5 Submittal Schedule" and "1.6 Submittal Identification"
- C. The Contractor is responsible for all costs for creating electronic files for the submittal process. The Architect will not provide this service.
 - 1. The Submittal Cover Sheet located in Specification Section 006000 Project Forms shall be used for all Submittals.
 - a. An electronic form of the submittal cover is available from the Architect.
 - 2. The Submittal Cover sheet when scanned to a .PDF shall be the first page viewed in the individual file.
 - a. Each product submitted within a specification section shall have a Submittal Cover sheet attached. Combined submittals with one cover page will not be accepted
 - b. Each Submittal Cover sheet shall be filled in completely. Files that are sent with the Submittal Cover Sheet missing or not filled in correctly will not be reviewed. The Architect will send a notice that the submittal is missing information. If the Contractor fails to correct or provide the proper submittal within 15 days, notice will be provided, and the submittal will be REJECTED.
 - 3. The Contractor(s) will be provided with a link to upload files to the Newforma Info Exchange. The site address and a "log in" will be provided to the Contractor(s) free of charge.
 - 4. A read only Record Submittal Log and RFI Log will be available from the Newforma Info Exchange for the Contractors reference in checking the status of the submittals and shop drawings.
- D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittals of different types of submittals from related section for parts of the work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received. Delays associated with the above are the not the Architects responsibility and rests solely with the Contractor.
- E. Architect's Digital Data Files:
 - 1. The Architect will provide digital PDF's of Contract Drawings for the purpose of producing project record drawings for a Handling Fee of \$ 100 per plan.
 - a. Contract documents are graphic representations of approximate locations of materials. Therefore, information contained within these files should not be assumed to be accurate and users of the Files accept full responsibility for verifying the accuracy and completeness of the Files with field conditions and the contract documents.
 - 2. [Document Transfer Agreement For Projects where Architect's work files are not a deliverable: The Contractor shall execute an Electronic Document Transfer Agreement for all electronic transfers of files, other than PDFs. The contractor must provide acknowledgement, accept the information regarding drawings, ownership and Limitations of Liability. Agreement is found with Project Forms.
 - a. The following plot files will by furnished for each appropriate discipline:
 - 1) Floor plans.
 - 2) Reflected ceiling plans.

1.04 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect [and Construction Manager] and additional time for handling and reviewing submittals required by those corrections.
 - 1. Submit a preliminary if not final Submittal Schedule for approval a minimum of 15 days after award of contract. Failure to submit a submittal schedule within the required time frame will result in the refusal by the Architect to review any submittals. Delays associated with failure to receive the Submittal Schedule are the not the Architects responsibly and rest solely with the Contractor.
- B. The information is required to be submitted under the Submittal article from each respective Specification Section. With each item listed the Contractor shall provide anticipated dates for submission to the Architect. The Architect will review and accept or request that corrections be made for subsequent acceptance. This acceptance will constitute a review for the submittal, shop drawings and sample submissions may commence. No Submittals or Shop Drawings will be reviewed by the Architect until an approved Submittal Schedule is in place.
 - 1. The Submittal Schedule shall be coordinated with the overall Project Schedule to ensure that submittals are submitted and reviewed so as not to delay the Project Schedule.
 - 2. The Architect will not be responsible for ensuring that all required Shop Drawings, Product Data, Samples or similar submittals that are required to be submitted and reviewed under the Contract Documents are submitted by the Contractor. Submissions of Shop Drawings, Product Data, Samples or similar submittals are the Contractor's sole responsibility. Delays associated with the contractor's failure to provide the required submittals are the Contractors responsibility.
 - 3. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 4. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 30 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 5. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
 - 6. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's [and Construction Manager's] final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.

1.05 SUBMITTAL IDENTIFICATION

A. Submittal Cover Sheet: Attach one cover sheet for each product, shop drawing or sample. DO NOT combine submittals together with one cover sheet for multiple items. They will not be reviewed.

- B. Submittal Information: Include the following information in each submittal. Use the submittal cover form found in specification section 060000 Project Forms. An electronic form can be sent to the contractor upon request
 - 1. Contractor, Address, Phone/fax and or Email
 - 2. Contractors Submittal Number.
 - 3. Architects Project Number.
 - 4. Project Name (if not filled in by the Architect)
 - 5. Type of submittal being sent (select box)
 - 6. Product Identification including the following: Provide one submittal cover sheet for each product within a specification section
 - a. Specification Section Number
 - b. Contract Drawing Number
 - c. Product Name
 - d. Specification Reference: Part/Paragraph
 - e. Detail Reference
 - f. Manufacturer
 - 7. Contractors Approval: The contractor must acknowledge that they have reviewed the submittal for conformance with the Contract Documents and must sign and date the approval.
 - 8. Deviation from the Contract Documents: Where the submittal may not meet all of the requirements of the specified item. The contractor must indicate how the submitted item differs from the specified item.
 - 9. Contractor Comments: Any additional comments by the contractor should be indicated in this space. (Provide an attachment sheet for any other information required that will not fit on the cover sheet.)
- C. Deviations and Additional Information: On each individual submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information, revisions, line by line comparison and other information requested by Architect [and Construction Manager]. Indicate by highlighting on each submittal or noting on attached separate sheet. Identify options requiring selection by Architect.
- D. File Naming (for uploading): Each submittal or shop drawing file uploaded to the project on the Newforma Info Exchange, shall have in the file name, the specification section number followed by the submittal number, the submittal abbreviation and the specification section name. For re-submissions an R1 would be added following submittal number. The file name must include the following information:
 - a.
 - a. Example:
 - i. 081416 001 PD Flush Wood Doors Spec Section Submittal No. Submittal Abbr **Specification Name** i. i. i. File to Read: 081416-001 PD - Flush Wood Doors i. Re-submission to Read:081416-001-R1-Flush Wood Doors i. i.
 - i. Submittal Abbr. required to be used in the file name on submittals are as follows:
- 1. CD Coordination Drawings
- 1. CERT Certification(s)
- 1. CLC Calculations
- 1. DD Design Data
- 1. EJ Engineer's Judgement
 - LEED LEED or PD/LEED
- 1. O&M Operations and Maintenance Manuals
- 1. PD Product Data

- 1. PHOTO Photo
- 1. QD Qualification Data
- 1. RPT Report
- 1. SAMP Sample
- 1. SCH Schedule
- 1. SEL Make A Selection
- 1. SD Shop Drawing(s)
- 1. STDY Study
- 1. TR Test Results
- 1. WAR Warranty
- 1.
- E. When uploading submittals or RFI's to the Newforma Info Exchange, complete the online transmittal. The information required is derived from the contractor's submittal cover sheet or RFI. Instructions using the Newforma Info Exchange are available from CPL. These instructions can be emailed to the contractor.

1.06 SUBMITTAL DATA AND TESTING REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment. Each product within a specification section shall have a separate submittal cover.
 - 1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 - Mark each copy of each submittal to show which products and options are applicable. Send full submittals for each product. Partial submittals will not be reviewed until all required submittal information is received. The architect will not be responsible for project delays due to the contractor's failure to submit the required submittal information in a complete package.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.
- B. Shop Drawings: Prepare project-specific information for each shop drawing. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Description any conflicts with other trades.

- h. Seal and signature of professional engineer if specified.
- C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
 - 1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package. If samples are delivered with product data, only the samples will be reviewed. The Product Data must be uploaded to the Newforma Info Exchange. A duplicate submittal cover sheet is to be uploaded to the Newforma Info exchange as a record of sample delivery.
 - a. The Product Data is to be loaded concurrent with the delivery of samples. Samples may be delivered/given to the Architect. In the remarks column of the transmittal place "given to the Architect"
 - 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 - g. In addition to all hard copy and physical samples submitted, duplicate digital submittal is to be produced for review, record and tracking purposes through Newforma Info Exchange. Include same information as above as well as a high resolution, color, digital image of all samples with labeled information clearly visible for each physical sample.
 - 3. Disposition: Maintain sets of approved Samples at Project site, available for qualitycontrol comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 - 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit [one] or Insert number full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect [, through Construction Manager,] will return submittal with options selected.
 - 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit [three] or Insert number sets of Samples. Architect [and Construction Manager] will retain [two] or Insert number Sample sets; remainder will be returned. [Mark up and retain one returned Sample set as a project record Sample.]
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least [three] or Insert number sets of paired units that show approximate limits of variations.

- D. Information requirements for each submittal: Where submittal is requiring Schedules, Product Data, Qualification Data, Design Data, Certificates and Tests use the following protocol.
 - 1. Schedules: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 - 2. Product Data. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 - a. Manufacturer and product name, and model number if applicable.
 - b. Number and name of room or space.
 - c. Location within room or space.
 - 3. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
 - 4. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
 - 5. Certificates:
 - a. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 - b. Insert definition of Contractor certificates here if required by individual Specification Sections. See the Evaluations.
 - c. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 - d. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - e. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
 - f. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
 - g. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.
 - h. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 - i. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - j. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
 - k. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 - 6. Test and Research Reports:
 - a. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
 - b. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is

installed in its final location, for compliance with requirements in the Contract Documents.

- c. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- d. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- e. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- f. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1) Name of evaluation organization.
 - 2) Date of evaluation.
 - 3) Time period when report is in effect.
 - 4) Product and manufacturers' names.
 - 5) Description of product.
 - 6) Test procedures and results.
 - 7) Limitations of use.
- E. Submit the following submittals: Within 15 days of contract award.
 - 1. Submittal Schedule including dates of anticipated review and approval.
 - a. No submittals will be reviewed without an approved Submittal Schedule in place.
 - 2. Subcontractor List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - a. Name, address, telephone number and email address of entities performing subcontract or supplying products.
 - b. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
 - 4. Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- F. Submit with in the first 30 days after Contract Award
 - Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014329 "Special Inspections."
 - 2. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
 - 3. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- G. Submit Field Test Reports during construction within 15 days of the testing date and as follows:
 - 1. Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- H. Submit a minimum 30 days prior to Project Closeout:

- 1. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- 2. Maintenance Data: Comply with requirements specified in Division 01 Section 017823 "Operation and Maintenance Data."

1.07 SUBMITTAL PROCESSING

- A. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
- B. The architect will not be responsible for project delays due to the contractor's failure to submit the required submittal information in time to allow for review based on the stipulated review time and to meet the project schedule.
- C. Initial Review: Allow 10 Calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
- D. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
- E. Re-submittal Review: Allow 10 Calendar days for review of each re-submittal.
- F. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 Calendar days for initial review of each submittal.
- G. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 Calendar days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- H. Where submittal are required to be approved that are part of an assembly or for items such as finishes where color selections are required. The submittal will be retained until all of the information related to these systems and color selections is provided and accepted.
- I. Products with multiple submittals may be held until all necessary information has been submitted for architect to make a complete review. Submittals dependent on coordinating information from related or dependent products; or products with critical interface with other products may be held until all information is submitted for architect to make a complete review and coordinate all required information. (example door frames will not be reviewed without door hardware)
- J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with reviewed notation from Architect's [and Construction Manager's] action stamp.
- K. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

1.08 SUBMITTAL PROCEDURES

- A. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- B. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

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- C. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- D. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- E. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- F. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- G. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- H. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- I. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- J. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."
- K. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- L. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- M. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- N. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- O. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

1.09 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

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B. Contractors Approval: Provide Contractor's approval signature and date on the Submittal Cover sheet certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1.10 ARCHITECT'S ACTION

- A. Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will respond to each submittal indicating one of the following actions required:
 - 1. No Exceptions Taken: Architect takes no exception to the submittal. This part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 - 2. Furnish as Corrected: No exceptions taken except what is identified by the Architect. The 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; final acceptance will depend on that compliance. Furnish any additional related information as requested.
 - 3. Revise and Re-Submit: Revise the submittal based on the Architects comments and resubmit the submittal. 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.
 - 4. Rejected: The submittal is rejected. See Architects comments on why submittal was rejected.
 - a. Submittal has not been reviewed by the Contractor and so noted.
 - b. Submittal has been prepared without due regard for information called for or logically implied by the Contract Documents.
 - c. Information is not sufficiently complete or accurate to verify that work represented is in accordance with the Contract Documents.
 - d. Do not permit submittals marked "Rejected" to be used at the Project Site, or elsewhere where Work is in progress.
 - 5. No Action Taken: The submittal is not required and will not be reviewed.
- B. Submittals by Newforma Info Exchange: Architect [and Construction Manager] will indicate, on Newforma Info Exchange, the appropriate action.
- C. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. The Architects action will be noted in the Newforma Info Exchange.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect. The Architects action will be noted in the Newforma Info Exchange and noted as a partial review until a full submittal can be received.
- E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for re-submittal without review.
- F. Submittals not required by the Contract Documents will not be reviewed and will receive no action.

1.

PART 2 PRODUCTS (NOT USED) PART 3 EXECUTION (NOT USED)

END OF SECTION 013300

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SECTION 014000 QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other qualityassurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections:
 - 1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
 - 2. Division 01 Section "Code-Required Special Inspections and Procedures" for tests and inspections ordered by the Owner.
 - 3. Divisions 02 through 49 Sections for specific test and inspection requirements.

1.02 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Construction Manager.
- C. Mockups: Full size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
 - 1. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
 - 2. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- D. Preconstruction Testing: Tests and inspections performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.03 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.04 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.05 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems.
 - 1. Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by the Architect.
 - 2. Main wind-force resisting system or a wind-resisting component listed in the windforce-resisting system quality assurance plan prepared by the Architect.
- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.06 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and re-inspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of technical representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement that equipment complies with requirements.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 4. Statement whether conditions, products, and installation will affect warranty.
 - 5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.07 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm with 5 years experience in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm with 5 years' experience in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

- D. Installer Qualifications: A firm or individual with 5 years experience in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. 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 the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect through Construction Manager, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location indicated or, if not indicated, as directed by Architect or Construction Manager.
 - 2. Notify Architect and Construction Manager seven days in advance of dates and times when mockups will be constructed.

- 3. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
- 4. Demonstrate the proposed range of aesthetic effects and workmanship.
- 5. Obtain Architect's and Construction Manager's approval of mockups before starting corresponding Work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
- 6. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.
- 7. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- 8. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
- 9. Demolish and remove mockups when directed unless otherwise indicated.
- L. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings . Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.
 - 1. Coordinate construction of the mockup to allow observation of air barrier installation, flashings, air barrier integration with fenestration systems, and other portions of the building air/moisture barrier and drainage assemblies, prior to installation of veneer, cladding elements, and other components that will obscure the work.

1.08 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
 - 6. Notify testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority, Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

- 1. Notify Architect, Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
- 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
- 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
- 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
- 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
- 6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 6. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required qualityassurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.09 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner as indicated in Statement of Special Inspections, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect Commissioning Authority, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 6. Retesting and re-inspecting corrected work.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's and Construction Manager's reference during normal working hours.

3.02 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014119

REGULATORY REQUIREMENTS - NYS EDUCATION DEPARTMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. "Uniform Safety Standards for School Construction and Maintenance Projects" for maintaining a Certificate of Occupancy during construction.

1.02 REFERENCES

A. Section 155.5 of the Regulations of the New York State Commissioner of Education "Uniform Safety Standards for School Construction and Maintenance Projects".

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 GENERAL REQUIREMENT

A. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy.

3.02 HAZARDOUS BUILDING MATERIALS

A. Surfaces that will be disturbed during renovation or demolition have been tested for lead and asbestos. Results of the testing are available, upon request, from the Owner.

3.03 GENERAL SAFETY AND SECURITY STANDARDS FOR CONSTRUCTION

- A. General safety and security standards for construction projects include the following:
 - 1. All construction materials shall be stored in a safe and secure manner.
 - 2. Fences around construction supplies or debris shall be maintained.
 - 3. Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.
 - 4. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.
 - 5. Workers shall be required to wear photo-identification badges at all times for identification and security purposes while working at occupied sites.

3.04 SEPARATION OF CONSTRUCTION AREAS FROM OCCUPIED AREAS

- A. Construction areas which are under the control of a contractor and therefore not occupied by district staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.
 - 1. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or school staff.
 - 2. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.
 - 3. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times that classes are in session."

3.05 MAINTAINING EXITING DURING CONSTRUCTION

A. The Contractor will prepare a plan detailing how exiting required by the applicable building code will be maintained during construction. The plan shall indicate temporary construction

required to isolate construction equipment, materials, people, dust, fumes, odors, and noise during the construction period. Temporary construction details shall meet code-required fire ratings for separation and corridor enclosure. At a minimum, required exits, temporary stairs, ramps, exit signs, and door hardware shall be provided at all times.

3.06 MAINTAINING VENTILATION DURING CONSTRUCTION

A. The Contractor will prepare a plan detailing how adequate ventilation will be maintained during construction. The plan shall indicate ductwork that must be rerouted, disconnected, or capped in order to prevent contaminants from the construction area from entering the occupied areas of the building. The plan shall also indicate how required ventilation to occupied spaces affected by the construction will be maintained during the project.

3.07 NOISE ABATEMENT DURING CONSTRUCTION

- A. Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken
- B. Noise level measurements (dba) shall be taken with a type 2 sound level meter in the occupied space in a location closest to the source of noise.
- C. Each prime contractor shall have a type 2 sound level meter available on the project site at all times for use by the architect/engineer for the entire duration of the construction project.

3.08 CONTROL OF CHEMICAL FUMES, GASES AND OTHER CONTAMINANTS DURING CONSTRUCTION

- A. The contractor shall be responsible for the control of chemical fumes, gases, and other contaminates produced by, including but not limited to, welding, gasoline or diesel engines, roofing, paving, or painting, to ensure they do not enter occupied portions of the building or air intakes.
 - 1. Contractors shall provide a plan indicating how and where welding, gasoline engine, roofing, paving, painting or other fumes will be exhausted from the work site. Contractors shall provide all temporary means to assure that fresh air intakes do not draw in such fumes.
 - 2. If any portion of the work will generate toxic gases that cannot be contained in an isolated area, the work shall be done when school classes and programs are not in session. The contractor shall include costs associated with this requirement in his bid. The building shall be properly ventilated and, the material shall be given proper time, as recommended by the manufacturer, to cure "off-gas" before re-occupancy.
 - 3. The contractor shall maintain all manufacturers' Material Safety Data Sheets (MSDS) at the site for all products used in the project. Copies of the MSDS sheets shall be given to the Architect and to the School District. MSDS sheets shall be provided to anyone who requests them.

3.09 CONTROL OF OFF-GASSING DURING CONSTRUCTION

- A. The contractor shall be responsible to ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled, cured or ventilated in accordance with manufacturers recommendations before a space can be occupied.
 - 1. Contractor shall provide, in their schedules for work of the construction, proper time for "off-gassing" or volatile organic compounds introduced during construction before occupancy is allowed. Specific attention is warranted for activities including glues, adhesives, paint, furniture, carpeting, wall coverings, and drapery. Manufacturers shall be contacted to obtain information regarding appropriate temperatures and times needed to cure or ventilate the product during use and before safe occupancy of the space can be assured. The contractor shall include the above-mentioned information and shall clearly highlight the information, as part of the shop drawing submittal.
 - 2. Building materials or furnishings which "off-gas" chemical fumes, gases, or other contaminants shall be aired out in a well ventilated heated warehouse before it is brought to the project for installation or, the manufacturer's recommended "off-gassing" periods must be scheduled between installation and use of the space.
The contractor shall maintain all manufacturers' Material Safety Data Sheets (MSDS) at the site for all products used in the project. Copies of the MSDS sheets shall be given to the Architect and to the School District. MSDS sheets shall be provided to anyone who requests them.

3.10 ASBESTOS-CONTAINING BUILDING MATERIALS

- A. Large and small asbestos abatement projects as defined by 12NYCRR56 shall not be performed while the building is occupied. The term "building", as referenced in this section, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed noncombustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion and ventilation systems must be physically separated and sealed at the isolation barrier.
- B. Exterior work such as roofing, flashing, siding, or soffit work may be performed on occupied buildings provided proper variances are in place as required, and complete isolation of ventilation systems and at windows is provided. Care must be taken to schedule work so that classes are not disrupted by noise or visual distraction.
- C. For clearance sampling, the air sampling technician shall provide aggressive air sampling per Rule 56 and as follows: First direct the exhaust of a leaf blower, against all walls, ceilings, floors, ledges, and other surfaces in the work area. Continue agitation for at least five minutes per every 1,000 sf of floor space. Following this aggressive agitation, the air-sampling technician shall use at least one 20-inch fan per 10,000 cubic feet of work area space for continuous agitation. The fan shall be operated on low speed and pointed toward the ceiling. Sampling pumps shall be started after the fans are started and stopped before the fans are stopped.
 - 1. Samples shall be logged on a permanently bound logbook at the laboratory. No whiteout will be used to make corrections.
 - 2. All lab counts, data and analysis shall be recorded on a lab summary sheet for each sample.
 - 3. Per the requirements of the New York State Education Department all Final Air Clearance Samples shall be (TEM) Transmission Electron Microscopy methodology.

3.11 LEAD-CONTAINING BUILDING MATERIALS

- A. Surfaces that will be disturbed by reconstruction have been tested for the present of lead based paint materials. This information is provided in order that proper measures are taken, to train and protect workers per OSHA regulations. Refer to Division 0 Existing Hazardous Material Information for testing results.
- B. Projects which disturb surfaces that contain lead shall have in the specifications a plan prepared by a certified Lead Risk Assessor or Supervisor which details provisions for occupant protection, worksite preparation, work methods, cleaning and clearance testing which are in general accordance with the HUD Guidelines.

END OF SECTION 014119

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SECTION 014200 REFERENCES

PART 1 GENERAL

1.01 KEY DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.02 DEFINITIONS

- A. Air Handling Unit: A blower or fan used for the purpose of distributing supply air to a room, space or area.
- B. Approved Agency: An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved according to the requirements established in this Section and as required by the Code Official having jurisdiction over this project.
- C. Architect: Other terms including "Architect/Engineer" and "Engineer" have the same meaning as "Architect".
- D. Company Field Adviser: An employee of the Company which lists and markets the primary components of the system under the name who is certified in writing by the Company to be technically qualified in design, installation, and servicing of the required products or an employee of an organization certified by the foregoing Company to be technically qualified in design, installation, and serving of the required products. Personnel involved solely in sales do not qualify.
- E. Concealed Location: A location that cannot be accessed without damaging permanent parts of the building structure or finish surface. Spaces above, below or behind readily removable panels or doors shall not be considered as concealed.
- F. Concealed Piping: Piping that is located in a concealed location. (See "concealed location".)
- G. Connect: A term contraction and unless otherwise specifically noted is to mean "The labor and materials necessary to join or attach equipment, materials or systems to perform the functions intended".
- H. Construction Manager: [The Palombo Group]
- I. Drain: Any pipe that carries wastewater or water-borne wastes in a building drainage system.

- J. Drainage Fittings: Type of fitting or fittings utilized in the drainage system. Drainage fittings are similar to cast-iron fittings, except that instead of having a bell and spigot, drainage fittings are recessed and tapped to eliminate ridges on the inside of the installed pipe.
- K. Drainage System: Piping within a public or private premise that conveys sewage, rainwater or other liquid wastes to a point of disposal. A drainage system does not include the mains of a public sewer system or a private or public sewage treatment or disposal plant.
 - 1. Building Gravity: A drainage system that drains by gravity into the building sewer.
 - 2. Sanitary: A drainage system that carries sewage and excludes storm, surface and ground water.
 - 3. Storm: A drainage system that carries rainwater, surface water, condensate, cooling water or similar liquid wastes.
- L. Duct: A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.
- M. Duct System: A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.
- N. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- O. Headroom: Minimum clearance between the floor and the underside of the point of lowest installed mechanical construction above. In case of stairways and walkways, the minimum clearance between the step or surface of the walkway and the lowest installed mechanical construction above the stairway or the walkway.
- P. Include: When used in any form other than "inclusive", is non-limiting and is not intended to mean "all-inclusive."
- Q. Indicated: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- R. Inspection Certificate: Identification applied on a product by an approved agency containing the name of the manufacturer, the function and performance characteristics, and the name and identification of an approved agency that indicates that the product or material has been inspected and evaluated by an approved agency.
- S. Installer: An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. Trades: Using a term such as "carpentry" does not 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 tradespersons of the corresponding generic name.
 - 2. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.
 - 3. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.
- T. Label: An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, and the name and identification of an approved agency and that indicates that the representative sample of the product or material has been tested and evaluated by an approved agency.

- U. Location:
 - 1. Damp Location: Partially protected locations under canopies, marquees, roofed open porches and like locations, and interior locations subject to moderate degrees of moisture, such as some basements, some barns and some cold-storage warehouses.
 - 2. Dry Location: A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.
 - 3. Wet Location: Installations underground or in concrete slabs or masonry in direct contact with the earth and locations subject to saturation with water or other liquids, such as vehicle-washing areas, and locations exposed to weather and unprotected.
- V. Manufacturer's Designation: Identification applied on a product by the manufacturer indicating that a product or material complies with a specified standard or set of rules (see also "Inspection Certificate," "Label" and "Mark").
- W. Mark: An identification applied on a product by the manufacturer indicating the name of the manufacturer and the function of a product or material (see also "Inspection Certificate," "Label" and "Manufacturer's Designation").
- X. Mechanical: Other terms including "HVAC", "Plumbing", "Sprinkler", "Laboratory Equipment", "Food Service Equipment", "Laundry Equipment", and "Refrigeration" have the same meaning as "Mechanical".
- Y. Owner: Newburgh Enlarged City School District .
- Z. Piping: This term includes pipe, tube and appurtenant fittings, flanges, valves, traps, hangers and supports.
- AA. Piping, Concealed: Piping built into construction and not accessible without removal of construction Work such as masonry, plaster or other finish material, and piping installed in floors, furred spaces, suspended ceilings, non-walk-in tunnels, conduits, and behind removable panels and cabinet doors.
- BB. Piping, Distribution: Domestic water supply piping, starting with a connection to service piping, and continuing throughout the building to point of connection to equipment and fixture supply piping.
- CC. Piping, Exposed: Piping directly accessible by normal accesses without removal of any construction Work or material.
- DD. Piping, Service: Underground domestic water supply piping with a connection to a water main or supply as noted, and continuing to and into a building and terminating with the exposed fitting inside the building.
- EE. Piping, Tunnel: Piping installed in walk-in or non-walk-in tunnels or conduits up to first shutoff valve inside building.
- FF. Plumbing System: Includes the water supply and distribution pipes; plumbing fixtures and traps; water-treating or water-using equipment; soil, waste and vent pipes; and sanitary and storm sewers and building drains, in addition to their respective connections, devices and appurtenances within a structure or premises.
- GG. Product: As used includes materials, systems and equipment.
- HH. Registered Design Professional: An individual who is a registered architect (RA) in accordance with Article 147 of the New York State Education Law or a licensed professional engineer (PE) in accordance with Article 145 of the New York State Education Law.
- II. Space, Finished: A space which has a finishing material applied to walls or ceilings, such as paint, plaster, ceramic tile, enamel glazing, face brick, vinyl wall covering, etc. to provide a finished appearance or which will have such finishes applied under a related Contract.
- JJ. Space, Unfinished: A space which does not meet the definition of a finished space.
- KK. Special Inspection: Inspection as herein required of the materials, installation, fabrication, erection, or placement of components and connections requiring special expertise to ensure compliance with approved construction documents and referenced standards.
- LL. Steam-Heating Boiler: A boiler operated at pressures not exceeding 15 psi for steam.

- MM. Supplier: Any person or organization who supplies materials or equipment for the work, including that fabricated to a special design.
- NN. Utility: Any gas, steam, water, sanitary sewer, storm sewer, electrical or other such service.
- OO, Water Supply System: The water service pipe, water distribution pipes, and the necessary connecting pipes, fittings, control valves and all appurtenances in or adjacent to the structure or premises.
 - Chilled: Water-cooled by refrigeration. 1.
 - 2. Cold: Water with at temperature between 33 degrees F and 80 degrees F and which is neither cooled nor heated mechanically.
 - Domestic: Water for use in buildings, except water used in connection with space 3. heating and space cooling.
 - High Temperature: Water with a supply water temperature above 350 degrees. 4.
 - Hot: Water at a temperature greater than or equal to 110°F. 5.

1.03 INDUSTRY STANDARDS

- Applicability of Standards: Unless the Contract Documents include more stringent A. requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
 - Minimum Quantity or Quality Levels: The quantity or quality level shown or specified 1 shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - Where copies of standards are needed to perform a required construction activity, 1. obtain copies directly from publication source.

1.04 ABBREVIATIONS AND ACRONYMS

A.

re

AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (part of CPA)
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
ARI	Air-Conditioning & Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International
AWCMA	American Window Covering Manufacturers Association (WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association

BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
CBM	Certified Ballast Manufacturers
CCC	Carpet Cushion Council
CDA	Copper Development Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
	Composite Panel Association
UF A	
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSI	Cast Stone Institute
001	
CSI	Construction Specifications Institute (The)
СТІ	Cooling Technology Institute
DHI	Door and Hardware Institute
- 1 A	
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FM Approvals	Factory Mutual Approvals
FSA	Fluid Sealing Association
GA	Gypsum Association
	Class Association of North America
GANA	
GSI	Geosynthetic Institute

HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association
HPVA	Hardwood Plywood & Veneer Association
ICEA	Insulated Cable Engineers Association, Inc
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
IPCEA	Insulated Power Cable Engineer Associates
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LEED	Leadership in Energy and Environmental Design
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MIA	Marble Institute of America

MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International
	National Air Duct Cleaners Acceptation
NADCA	
NAIMA	North American Insulation Manufacturers Association
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFHS	National Federation of State High School Associations
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association

NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NWWDA	National Wood Window and Door Association (WDMA)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
	DV/C Coomombrano Instituto
FGI	
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
	Des ille et Ele en Oscario e la stitute
RFCI	Resilient Floor Covering Institute
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers
8000	Sefety Clearing Contification Council
SGCC	Salety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association
C II	
5JI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SPIB	Southern Pine Inspection Bureau (The)
57KI	Single Ply Rooting Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings

STI	Steel Tank Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.

1.05 FEDERAL GOVERNMENT AGENCIES:

 A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOF	Department of Energy
DOE	
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
007	
HUD	Department of Housing and Urban Development
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
	
PHS	Office of Public Health and Science
9D	State Department
30	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

B. Codes, Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines
BCNYS	Building Code of New York State
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
FS	Federal Specification
MILSPEC	Military Specification and Standards

1.06 NEW YORK STATE GOVERNMENT AGENCIES:

A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

DASNY	Dormitory Authority of the State of New York
DEC	Department of Environmental Conservation
DHCR	Division of Housing and Community Renewal
DHOR	
DOH	Department of Health
NYSDOL	New York State Department of Labor
DOS	Department of State
DOT	Department of Transportation
NYSPA	New York State Power Authority
OGS	Office of General Services
	Office of Children and Family Services
OCFS	
OMRD	Office of Mental Retardation and Developmental Disabilities
OPRHP	Office of Parks, Recreation and Historic Preservation
NYSED	New York State Education Department (Department of Education)
SHPO	State Historic Preservation Office
SUCF	State University Construction Fund

SUNY

State University of New York

1.07 NEW YORK STATE CODES

- A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.
 - 1. BCNYS Building Code of New York State
 - 2. 9-NYCRR New York State Dept. of Labor Title 9 State Building Code
 - 3. 10-NYCRR New York State Dept. of Labor Title 10 State Hospital Code
 - 4. 19-NYCRR Charter XXXIII, Sub Charter A, Uniform Fire Prevention and Building Code
- B. Where these abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.
 - 1. BCNYS Building Code of New York State
 - 2. ECCNYS Energy Conservation Code of New York State
 - 3. PCNYS Plumbing Code of New York State of New York State
 - 4. MCNYS Mechanical Code of New York State
 - 5. FGCNYS Fuel Gas Code of New York State
 - 6. FCNYS Fire Code of New York State

1.08 OTHER TERMS OR ACRONYMS:

- A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name in the following list.
 - 1. Asbestos Containing Materials
 - 2. Acoustical Tile
 - 3. Infection Control Risk Assessment
 - 4. Resilient Vinyl Tile
 - 5. Suspended Acoustical Tile
 - 6. Spray on Fire Resistive Materials
 - 7. Thermal Systems Insulation
 - 8. Vinyl Asbestos Tile
 - 9. Vinyl Composition Tile

1.09 OTHER TERMS OR ACRONYMS:

- A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name in the following list.
 - a. Asbestos Containing Materials
 - b. Acoustical Tile
 - c. Infection Control Risk Assessment
 - d. Resilient Vinyl Tile
 - e. Suspended Acoustical Tile
 - f. Spray on Fire Resistive Materials
 - g. Thermal Systems Insulation
 - h. Vinyl Asbestos Tile
 - i. Vinyl Composition Tile

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 014200

SECTION 014533 - CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for Special Inspections.
 - 1. The Owner shall employ one or more special inspectors to provide inspections during construction.
 - 2. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the contract Documents requirements.
- B. Requirements for the Contractor to provide quality-control services required by Architect or Authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

- A. Approved Agency: An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved.
- B. Independent: An approved agency shall be objective and competent. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed.
- C. Equipment: An approved agency shall have adequate equipment to perform required tests. The equipment shall be periodically calibrated.
- D. Personnel: An approved agency shall employ experienced personnel educated in conducting, supervising and evaluating tests and/or inspections.
- E. Special Inspection, Continuous: The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.
- F. Special Inspection, Periodic: The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work has been or is being performed and at the completion of the work.
- G. Quality-Assurance Services: Activities, actions and procedures performed before and during execution of the work to guard against defects and deficiencies and ensures that proposed construction complies with requirements.

1.3 REGULATORY REQUIREMENTS

- A. Copies of Regulations: Obtain copies of the following regulations and retain at the project site to be available for reference by parties who have a reasonable need:
- B. Building Code of New York State, Chapter: "Structural Tests and Special Inspections". By New York State Department of State, 41 State Street, Albany, New York.

1.4 REFERENCES - MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- B. ACI International (ACI)
 - 1. ACI Building Code Requirements for Structural Concrete and Commentary
 - 2. ACI Metric Building Code Requirements for Structural Concrete and Commentary

- 3. ACI Building Code Requirements for Masonry Structures
- C. American Institute of Steel Construction (AISC)
 - 1. AISC Seismic Provisions for Structural Steel Building
 - 2. AISC Specification for Structural Steel Buildings
- D. American Society for Testing and Materials (ASTM)
 - 1. ASTM A Straight-Beam Ultrasonic Examination of Steel Plates
 - 2. ASTM A Deformed and Plain Billet-steel Bars for Concrete Reinforcement
 - 3. ASTM A Straight Beam Ultrasonic Examination of Rolled Steel Structural Shapes

1.5 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the State of New York and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- B. Special Inspector: Owner/Owner's Agent shall provide a Special Inspector at the work site for each of the areas of responsibilities, specified below, who shall assist and report to the Owner, Engineer of record and who shall have no duties other than their assigned quality control duties. Special Inspectors are required to be physically present at the construction site to perform the phases of control and prepare documentation for each definable feature of work in their area of responsibility at the frequency specified. Special Inspectors shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements for Special Inspectors shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
 - 2. Concrete:
 - a. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 - b. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I.
 - c. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
 - 3. Smoke Control Systems:
 - a. Personnel conducting field tests shall be qualified in fire protection engineering, mechanical engineering, and certification as air balancer certified by AABC Test and Balance Technician.
 - 4. Structural Steel:
 - a. Personnel conducting inspections shall have current ICC Structural Steel and Welding Certification plus one year of relevant experience, or an equivalent certification program.
 - 5. Welding
 - a. Personnel conducting field tests shall be qualified as Certified Welding Inspector (CWI) according to AWS QC1 or an equivalent certification program.

1.6 SPECIAL INSPECTIONS - MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS

- A. Inspection of Fabricators: Where fabrication of structural load-bearing members and assemblies is being performed on the premises of a fabricator's shop, special inspection of the fabricated items shall be required by this section and as required elsewhere in the code.
- B. Steel Construction: The special inspections for steel elements of buildings and structures shall be as required by the Building Code of New York State. Where required special inspection of steel shall also comply with Section 1715 of The Building Code of New York State.
- C. Concrete Construction: The special inspections and verifications for concrete construction shall be as required by The Building Code of New York State.
- D. Masonry Construction: Masonry construction shall be inspected and evaluated in accordance with the requirements of The Building Code of New York State, depending on the classification of the building or structure or nature of occupancy, as defined by the Building Code of New York State.
- E. Soils: The special inspections for existing site soil conditions fill placement and load-bearing requirements shall follow The Building Code of New York State. The approved soils report shall be used to determine compliance.
- F. Special Cases. Special inspections shall be required for proposed work that is, in the opinion of the code enforcement official, unusual in its nature, such as, but not limited to, the following examples:
 - 1. Construction materials and systems that are alternatives to materials and systems prescribed by this code.
 - 2. Unusual design applications of materials described in this code.
 - 3. Materials and systems required to be installed in accordance with additional manufacturer's instructions that prescribe requirements not contained in this code or in standards referenced by this code.
- G. Smoke Control Systems: Smoke control systems shall be tested by a special inspector.

1.7 QUALITY ASSURANCE FOR SEISMIC RESISTANCE - MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS

- A. Scope: A quality assurance plan for seismic requirements shall be provided in accordance with the New York State building code for the following:
 - 1. The seismic-force-resisting systems in structures assigned to Seismic Design Category C, D, E or F.
 - 2. Designated seismic systems in structures assigned to Seismic Design Category D, E or F.
- B. The following additional systems in structures assigned to Seismic Design Category C:
 - 1. HVAC ductwork containing hazardous materials, and anchorage of such ductwork
 - 2. Piping systems and mechanical units containing flammable, combustible or highly toxic materials
 - 3. Anchorage of electrical equipment used for emergency or standby power systems.
- C. The following additional systems in structures assigned to Seismic Design Category D:
 - 1. Systems required for Seismic Design Category C
 - 2. Exterior wall panels and their anchorage.
 - 3. Suspended ceiling systems and their anchorage.
 - 4. Access floors and their anchorage.
 - 5. Steel storage racks and their anchorage, where the importance factor, Ip, determined is equal to 1.5.
- D. The following additional systems in structures assigned to Seismic Design Category E or F:

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- 1. Systems required for Seismic Design Categories C and D
- 2. Electrical equipment.

1.8 QUALITY ASSURANCE FOR WIND REQUIREMENTS - MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS

- A. Scope: A quality assurance plan for wind requirements shall be provided for all structures constructed in the following areas:
 - 1. In wind exposure categories A and B, where the 3-second-gust basic wind speed is 120 mph or greater.
 - 2. In wind exposure categories C and D, where the 3-second-gust basic wind speed is 110 mph or greater.

1.9 SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE - MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS

- A. General: Provide Special Inspection where required in the BCNYS.
- B. Special Inspections itemized in the BCNYS are required for the following:
 - 1. The seismic-force-resisting systems in structures assigned to Seismic Design Category C, D, E or F.
 - 2. Designated seismic systems in structures assigned to Seismic Design Category D, E or F.
 - 3. Architectural, mechanical and electrical components in structures assigned to Seismic Design Category C, D, E or F.
 - 4. Structural steel: Continuous special inspection for structural welding in accordance with AISC Seismic.
 - 5. Storage racks and access floors: Periodic special inspection during the anchorage of access floors and storage racks 8 feet (2438 mm) or greater in height in structures assigned to Seismic Design Category D, E or F.
 - 6. Architectural Components. Periodic special inspection during the erection and fastening of exterior cladding, interior and exterior nonload bearing walls, and veneer in structures assigned to Seismic Design Category D, E or F.
 - 7. Mechanical and electrical components:
 - a. Periodic special inspection during the anchorage of electrical equipment for emergency or standby power systems in structures assigned to Seismic Design Category C, D, E or F.
 - b. Periodic special inspection during the installation of anchorage of other electrical equipment in structures assigned to Seismic Design Category E or F.
 - c. Periodic special inspection during installation of piping systems intended to carry flammable, combustible, or highly toxic contents and their associated mechanical units in structures assigned to Seismic Design Category C, D, E or F.
 - d. Periodic special inspection during the installation of HVAC ductwork that will contain hazardous materials in structures assigned to Seismic Design Category C, D, E or F.
 - 8. Seismic Isolation System: Provide periodic special inspection during the fabrication and installation of isolator units and energy dissipation devices if used as part of the seismic isolation system.

1.10 STRUCTURAL TESTING FOR SEISMIC RESISTANCE - MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS

- A. Masonry: Testing and verification of masonry materials and assemblies prior to construction shall comply with the requirements of this section, depending on the classification of building or structure or nature of occupancy, as defined in The Building code of New York State .
- B. Testing for Seismic Resistance: The tests specified in the Building Code of New York State are required for the following:
 - 1. The seismic-force-resisting systems in structures assigned to Seismic Design Category C, D, E or F.
 - 2. Designated seismic systems in structures assigned to Seismic Design Category D, E or F.
 - 3. Architectural, mechanical and electrical components in structures assigned to Seismic Design Category C, D, E or F.
- C. Reinforcing and Pre-stressing Steel: Certified mill test reports shall be provided for each shipment of reinforcing steel used to resist flexural, shear and axial forces in reinforced concrete intermediate frames, special moment frames and boundary elements of special reinforced concrete or reinforced masonry shear walls.
 - 1. Where ASTM A 615 reinforcing steel is used to resist earthquake-induced flexural and axial forces in special moment frames and in wall boundary elements of shear walls in structures assigned to Seismic Design Category D, E or F, as determined in the Building Code of New York State, the testing requirements of ACI 318 shall be met.
 - 2. Where ASTM A 615 reinforcing steel is to be welded, chemical tests shall be performed to determine weld ability in accordance with the Building code of New York State.
- D. Structural Steel: The testing contained in the quality assurance plan shall be as required by AISC Seismic and the additional requirements herein. The acceptance criteria for nondestructive testing shall be as required in AWS D1.1 as specified by the registered design professional.
 - 1. Base metal thicker than 1.5 inches (38 mm), where subject to through-thickness weld shrinkage strains, shall be ultrasonically tested for discontinuities behind and adjacent to such welds after joint completion.
 - 2. Any material discontinuities shall be accepted or rejected on the basis of ASTM A 435 or A 898 (Level 1 Criteria) and criteria as established by the registered design professional(s) in responsible charge and the construction documents.
- E. Mechanical and Electrical Equipment: Each manufacturer of designated seismic system components shall test or analyze the component and its mounting system or anchorage and shall submit a certificate of compliance for review and acceptance by the registered design professional in responsible charge of the design of the designated seismic system and for approval by the code enforcement official.
 - 1. The evidence of compliance shall be by actual test on a shake table, by three-dimensional shock tests, by an analytical method using dynamic characteristics and forces, by the use of experience data (i.e., historical data demonstrating acceptable seismic performance), or by more rigorous analysis providing for equivalent safety.
 - 2. The special inspector shall examine the designated seismic system and shall determine whether the anchorages and label conform with the evidence of compliance.
- F. Seismically Isolated Structures. For required system tests, see the Building Code of New York State.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 STATEMENT OF SPECIAL INSPECTIONS

- A. Refer to attached form "Statement of Special Inspections" at the end of this section.
- B. Refer to attached "Schedule of Special Inspections" at the end of this section.

3.2 SPECIAL INSPECTION REPORTS

- A. Report Requirement: Special Inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the code enforcement official, and to the registered design professional in responsible charge.
 - 1. Reports shall indicate that work inspected was done in conformance to approved construction documents.
 - 2. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the code enforcement official and to the registered design professional in responsible charge prior to the completion of that phase of the work.
- B. Periodic Report: On the first day of each month, the special inspector shall furnish to the Architect five copies of the combined progress reports of the special inspector's observations. These progress reports shall list all special inspections of construction or reviews of testing performed during that month, note all uncorrected deficiencies, and describe the corrections made both to these deficiencies and to previously reported deficiencies.
 - 1. Each monthly report shall be signed by all special inspectors who performed special inspections of construction or reviewed testing during that month, regardless of whether they reported any deficiencies.
 - 2. Each monthly report shall be signed by the Contractor.
- C. Final Report: At completion of construction, each special inspector shall prepare and sign a final report attesting that all work they inspected and all testing and test reports they reviewed were completed in accordance with the approved construction documents and that deficiencies identified were satisfactorily corrected.
 - 1. The Special Inspector shall submit a combined final report containing the signed final reports.
 - 2. The Contractors shall sign the combined final report attesting that all final reports of special inspectors that performed work to comply with these construction documents are contained therein, and that the Contractor has reviewed and approved all of the individual inspector's final reports.
 - 3. Refer to attached form **"Report of Special Inspections"** attached at the end of this section.

END OF SECTION 014533

STATEMENT OF SPECIAL INSPECTIONS

NAME OF PROJECT:

ADDRESS OR LEGAL DESCRIPTION:

OWNER'S NAME:

AUTHORITY HAVING JURISDICTION:

I , as the owners , or Agent of the owner (contractors may not employ the special inspector), certify that I or architect/engineer of record, will be responsible for employing the special inspector(s) as required by the Building Code of New York State for the construction project located at the site listed above.

Signed:

I , as the structural engineer of record, certify that I have prepared the following special inspections program as required by the Building Code of New York State for the construction project located at the site listed above

Printed Name:

Seal

Signature:

Date:

List of work requiring special inspections:

See schedule following this page

SPECIAL INSPECTIONS REPORT

REPORT TYPE: Continuous Periodic Final WORK / MATERIAL INSPECTED:

PROJECT NAME: Address or Legal Description:

Owner's Name: Phone: Fax: APPROVED INSPECTION AGENCY: Address:

Phone: Fax: AUTHORITY HAVING JURISDICTION: Address:

Phone: Fax: REGISTER DESIGN PROFESSION OR RECORD: Address:

Phone: Fax: <u>STATEMENT OF CONFORMANCE:</u> Discrepancies: 1. None

- a. Contractor Review:
- b. Contractor signature:
- c. Contractor correction:
- **Outstanding Discrepancies:**
 - 1. None

a. Authority Having Jurisdiction review: Registered Design Professional review:

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SCHEDULE OF SPECIAL INSPECTIONS INSPECTIONS OF FABRICATORS 1.1 MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND

SUPPLEMENTS									
Inspection	Anotonial (Myould	Corrector of Lancoctica.	Frequency of Inspo	ection	Ref Standard: Most Recent Edition Adopted		BCNYS: Most Recent Edition Adopted By		Approved
Required	Material / W OFK	ocope of Inspection	Continuous	Periodic	By AHJ, include all applicable Amends & Suppl	keport type	AHJ, including all applicable Amends & Supp	Juanncauons	Agency
А	AISC Certified Steel Fabricators Inspections of load bearing members and assemblies	On premises inspection of fabricated items	V/N	NA	TBD	V/N	R T T	kegistered Design Professional	
λ	Non-AISC Certified Steel Fabricators Inspections of load bearing members and assemblies. Steel fabricator shall be responsible for the cost of this special inspection.	On premises inspection of fabricated items	Required	NA	TBD	Inspection report	R T	kegistered Design Professional	
А	AISC Certified Steel Fabricators Detailed fabrication / Quality Control Procedures	Review each Fabricator's quality control procedures	N/A	NA	TBD	A/A	R T T	kegistered Design Professional	
Х	Non-AISC Certified Steel Fabricators Detailed fabrication / Quality Control Procedures. Steel fabricator shall be responsible for the cost of this special inspection.	Review each Fabricator's quality control procedures	Prior to Fabrication	NA	TBD	Inspection report	7 1	kegistered Design Professional	
γ	Fabricator Certificate Approval	Review Certification of Compliance	Prior to Fabrication	NA	TBD	Submittal of Certificate of Compliance	7 1	kegistered Design Professional	
Z	Fabricated Wood structural items	Refer to inspection of fabricators	NA	NA		Statement of Verification			

CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES 014533 - 10 **NEWBURGH ECSD** 13740.20

SCHEDULE OF SPECIAL INSPECTIONS

STEEL CONSTRUCTION

Inspection		:	Frequency of Inspection	uo	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,		Approved
Required	Material / Work	Scope of Linspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	Keport type	including all applicable Amends & Supp	Qualifications	Agency
Z	Steel construction w/no Welding, thermal cutting or heating	Review each Fabricator's quality control procedures	Prior to Fabrication	VN	VA	Submittal of detailed procedure for material control by the fabricator		Registered Design Professional	
Y	Welding Fillets	Single pass fillet weld not exceeding 5/16 inch in size	A N	Required	AWS	Statement of verifying prior qualification , Periodic inspection report, Visual inspection report.		AWS D1.1 (1704.3.1)	
Y	Welding Deck	Floor and roof deck welding	Ч.	Required	SWA	Statement of verifying prior qualification , Periodic inspection report, Visual inspection report.		AWS D1.1 (1704.3.1)	

H ECSD CODE-	H ECSD Phase 5: 2019 Capital Improvement Project	CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES 014533 - 11
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Inspection			Frequency of Inspection	uo	Ref Standard : Most Recent Edition		(BCNYS: Most Recent Edition Adopted Bv AHJ,		Approved
Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	Keport type	ncluding all 1pplicable Amends & Supp	Qualifications	Agency
z	Welding Shear studs	Welded studs when used for structural diaphragm	YZ	Required	SWA	Statement of verifying prior qualification , Periodic inspection report, Visual inspection report.		AWS D1.1 (1704.3.1)	
z	Welding CFMF	Welded sheet steel for cold-formed steel framing members such as studs at joist	۲ Z	Required	AWS	Statement of verifying prior qualification , Inspection report, Visual inspection report.		AWS D1.1 (1704.3.1)	
z	Welding Stairs	Welding of stairs and railing systems	VA	Required	AWS	Statement of verifying prior qualification , Inspection report, Visual inspection report.		AWS D1.1 (1704.3.1)	
Z	Steel Frame details	Verify compliance with approved construction documents (shop drawings)	Required	AN	NA	Inspection report		Registered Design Professional	
Y	High strength bolt	Verification that installation meets AISC specification	NA	Required	AISC Specification	Inspection report		Registered Design Professional	

Approved	Agency					
	Qualifications	Registered Design Professional	Registered Design Professional	Registered Design Professional	Registered Design Professional	Registered Design Professional
IBCNYS: Most Recent Edition Adopted By AHJ,	including all applicable Amends & Supp					
	керогт туре	Inspection report	Inspection report	Monitoring reports	Monitoring reports	Inspection report
Ref Standard: Most Recent Edition	Adopted By AHJ, include all applicable Amends & Suppl	AISC Specification	AISC Specification	AISC Specification	AISC Specification	Applicable ASTM material specifications; AISC, ASD, AISC, LRFD,
ion	Periodic	NA	Required	Required, based on method	Required	Required
Frequency of Inspect	Continuous	Prior to construction	NA	Required, based on method	ΥN	VN
	ocope of Inspection	Observe the pre- installation testing	Determine that all plies are drawn together	Monitor installation for tightness	Verify material are drawn together	Identification markings to conform to conform to ASTM Standards specified.
	Material / W ork	Pre-tensioned bolts pre- installation	Connecting material	Pre-tensioned bolts tightness	Joints required to be Snug tight	Material verification of high-strength bolts, nuts, and washers.
Inspection	Required	z	Y	z	Y	Z

CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES 014533 - 12 NEWBURGH ECSD 13740.20 CODI

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			Frequency of Inspecti	on	Ref Standard : Most Recent Edition		(BCNYS: Most Recent Edition Adouted Bv AHL		Annroved
laterial / Work Scope of Inspection	Scope of Inspection		Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	Report type	ncluding all applicable Amends & Supp	Qualifications	Agency
Atterial verification of Manufacturer's gh-strength bolts, nuts, certificate of complianc id washers.	Manufacturer's certificate of complianc required.	e]	YN	Required	Applicable ASTM material specifications; AISC, ASD, AISC, LRFD,	Inspection report, Certificate of Compliance		Registered Design Professional	
spection of high-Bearing-type rength bolting: connections.	Bearing-type connections.		Y Z	Required	AISC LRFD	Inspection report		Registered Design Professional	
nspection of high- rength bolting: (moment connections)	Slip-critical connections. R (moment connections)	Ω.	equired	Required	AISC LRFD	Inspection report		Registered Design Professional	
laterial verification of Identification markings R ructural steel: to conform to ASTM standards specified.	Identification markings R to conform to ASTM standards specified.	Ω.	equired	VN	ASTM 6 or ASTM A568	Inspection report		Registered Design Professional	
Aaterial verification of Manufacturers' certified R ructural steel: mill test reports required.	Manufacturers' certified R mill test reports required.	~	equired	NA	ASTM 6 or ASTM A568	Inspection report, Certified mill test report		Registered Design Professional	

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t HJ,		Registe Design Profess	Registe Design Profess	Certifie Inspect	Certifie Inspect	Certifie Inspect
IBCNYS: Mos Recent Edition Adopted By A	including all applicable Amends & Sup					
	Keport type	Inspection report	Inspection report, Certificate of Compliance	Inspection report	Inspection report	Inspection report
Ref Standard: Most Recent Edition	Adopted By AHJ, include all applicable Amends & Suppl	AISC, ASD, AISC, LRFD,	AISC, ASD, AISC, LRFD,	AWS	AWS	AWS
ion	Periodic	Ч Ч	NA	NA	NA	NA
Frequency of Inspect	Continuous	Required	Required	Required	Required	Required
	Scope of Inspection	Identification markings to conform to AWS specifications.	Manufacturer's certificate of compliance required.	Complete and partial penetration groove welds.	Multi-pass fillet welds.	Single-pass fillet welds greater than 5/16"
	Material / Work	Material verification of weld filler materials:	Material verification of weld filler materials:	Inspection of welding: Structural Steel	Inspection of welding: Structural Steel	Inspection of welding: Structural Steel
Inspection	Required	Y	Y	z	z	z

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, , , , , , , , , , , , , , , , , , ,		Certified Welding Inspector (CWI)	Certified Welding Inspector (CWI)	Certified Welding Inspector (CWI)	Certified Welding Inspector (CWI)	Certified Welding Inspector (CWI)
IBCNYS: Most Recent Edition Adopted By AHJ,	including all applicable Amends & Supp					
	Neport type	Inspection report	Inspection report	Inspection report	Inspection report	Inspection report
Ref Standard: Most Recent Edition	Auchee By Arri, include all applicable Amends & Suppl	SMA	SMA	AWS, ACID	AWS, ACID	AWS, ACID
ion	Periodic	Required	Required	Required	A	NA
Frequency of Inspect	Continuous	NA	NA	NA	Required	Required
	acobe of this pectron	Single-pass fillet welds less than 5/16".	Floor and deck welds.	Verification of weld ability of reinforcing steel other than ASTM A 706	Reinforcing steel- resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls, and shear reinforcement	Shear reinforcement
	Matchat / WOLK	Inspection of welding: Structural Steel	Inspection of welding: Structural Steel	Inspection of welding: Reinforcing steel:	Inspection of welding: Reinforcing steel:	Inspection of welding: Reinforcing steel:
Inspection	Required	Z	Y	z	z	z

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Inspection			Frequency of Inspecti	uo	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted Bv AHJ.	1	Approved
Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, I include all applicable Amends & Suppl	Keport type	including all applicable Amends & Supp	Jualifications	Agency
z	Inspection of welding: Reinforcing steel:	Other reinforcing steel	Ч	Required	aws, acid	inspection report		Certified Welding Inspector (CWI)	
z	Inspection of steel frame joint details for compliance with the Construction Documents:	Inspect Details such as bracing and stiffening.	NA	Required	P N	nspection report		Registered Design Professional	
z	Inspection of steel frame joint details for compliance with the Construction Documents:	Inspect member locations.	A	Required	r V	nspection report		Registered Design Professional	
Z	Inspection of steel frame joint details for compliance with the Construction Documents:	Inspect application of joint details at each connection.	NA	Required	I VN	inspection report		Registered Design Professional	
z	Material Tests	Test for joist hangers	Required	AN	ASTM D 1761, AFPA (NDS	Compliance certification		Registered design Professional	

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Inspection			Frequency of Inspection	ио	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,		Approved
Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By Artu, include all applicable Amends & Suppl	керогт суре	including all applicable Amends & Supp	Quanneations	Agency
z	Inspection of steel frame joint details for compliance with the Construction Documents:	Vertical load of joist hangers	Required	AA	ASTM D 1761	Compliance certification		Registered design Professional	
z	Inspection of steel frame joint details for compliance with the Construction Documents:	Torsional moment capacity for joist hangers	Required	AA	ASTM D 1761	Compliance certification		Registered design Professional	
z	Inspection of steel frame joint details for compliance with the Construction Documents:	Design value modifications for joist hangers	Required	AA	ASTM D 1761, AFPA NDS	Compliance certification		Registered design Professional	

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SCHEDULE OF SPECIAL INSPECTIONS

CONCRETE CONSTRUCTION

Material / Worl		Scone of Insnection	Frequency of Inspectic	u	Ref Standard: Most Recent Edition Adomed By AHI	Renort tyne	IBCNYS: Most Recent Edition Adopted By AHJ,	Oualifications	Approved
			Continuous	Periodic	include all applicable Amends & Suppl		including all applicable Amends & Supp	Cuantivations	Agency
Concrete testing Absence of test dat	Absence of test dat	ia .	4 VN	AN	Chapter 3 of ACI 318	Statement of conformance			
Concrete reinforcement Inspection of reinfor steel, including pre- stressing tendons, an placement.	Inspection of reinfor steel, including pre- stressing tendons, an placement.	cing	PN NN	Required	ACID	Inspection report		CERTIFIED- certified Concrete Strength Testing Technician Grade I.	
Concrete reinforcement Inspection of reinforcit welding accordance with Table 1704.3, Item 5B.	Inspection of reinforcir steel welding in accordance with Table 1704.3, Item 5B.	<u>ല</u>	Required	AA	AWS CERTIFIED	Inspection report		CERTIFIED- certified Concrete Strength Testing Technician Grade I.	
Bolts Inspect bolts to be installed in concrete pr to and during placeme of concrete where allowable loads have been increased	Inspect bolts to be installed in concrete pr to and during placeme of concrete where allowable loads have been increased	nt	Required	AA	NA	Inspection report		ACI-certified Concrete Strength Testing Technician Grade I.	
Design Mix Verifying use of requir design mix.	Verifying use of requir design mix.	ed	H VN	Required	ACI 318	Inspection report			

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Phase 5: 2019 Capital Improvement Project CIAL INSPECTIONS AND PROCEDURES 014533 - 19 CUDE-REQUIRED SPEC 13/40.20

Inspection			Frequency of Inspecti	0n	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,		Approved
Required	Material / Work	Scope of the pection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	keport type	including all applicable Amends & Supp	Juanneauons	Agency
А	Concrete strength	Strength test	Required	AN	ASTM C 31, ASTM C 39	Inspection report		ACI-certified Concrete Strength Testing Technician Grade I.	
А	Slump	Sampling fresh concrete and performing slump, air content and determining the temperature of fresh concrete at the time of making specimens for strength tests.	Required	AN	ASTM C 172, ASTM I C 31, ACI 318	Inspection report			
z	Shotcrete	Inspection of concrete and shotcrete placement for proper application techniques.	Required	AN	ACI 318	inspection report			
Y	Curing	Inspection for maintenance of specified curing temperature and techniques.	NA	Required	ACI 318	inspection report			
z	Pre-stressed concrete	Inspect application of pre-stressing forces.	Required	NA	ACI 318	inspection report			

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Materia	1/ Work	Scone of Lusnection	Frequency of Inspectio	и	Ref Standard: Most Recent Edition Adonted By AH1	Renort true	IBCNYS: Most Recent Edition Adopted By AHJ,	Ouslifications	Approved
			Continuous	Periodic	Amends & Suppl		including all applicable Amends & Supp	Zuanna nons	Agency
Pre-stressed concrete In bo bo to fo	In bc te fo	spect grouting of onded pre-stressing ndons in the seismic- rce- resisting system.	Required	AN	ACI 318	Inspection report			
Precast In pr	hr In	spect erection of ecast concrete embers.	NA	Required	ACI 318	Inspection report			
In-situ, Concrete strength V co to pc	pc Co pc	arification of in-situ norete strength, prior Stressing of tendons in st-tensioned concrete	NA	Required	ACI 318	Inspection report			
In-situ, Concrete strength V cc to fo st	to to cc sti	erification of in-situ merete strength, prior removal of shores and rms from beams and ructural slabs.	NA	Required	ACI 318	Inspection report			

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Phase 5: 2019 Capital Imprc	PECTIONS AND PROCEDURES
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SCHEDULE O	F SPECIAL INSPECTIC	SNO						
MASONRY CC LEVEL 1	NSTRUCTION							
Inspection			Frequency of Inspecti	uo	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,	
Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	Keport type	including all applicable Amends & Supp	Qualifications
Z	Verify to ensure compliance	Proportions of site prepared mortar.	V N	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report		
Z	Verify to ensure compliance	Construction of mortar joints.	ΨN	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report		
z	Verify to ensure compliance	Location of reinforcement and connectors.	۲ Z	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report		
z	Verify to ensure compliance	Pre-stressing technique.	VA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report		
Z	Verify to ensure compliance	Grade and size of pre- stressing tendons and anchorages.	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report		

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vement Project	014533 - 22
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Inspection		C	Frequency of Inspecti	ion	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,	Out of the	Approved
Required	Waterial / Work	scope of the pector	Continuous	Periodic	Auopted by Artu, include all applicable Amends & Suppl		including all applicable Amends & Supp	Qualifications	Agency
Z	The inspection program shall verify	Size and location of structural elements.	₹ N	Required	ACI 530.1/ ASCE 6/ TMS 602				
Z	The inspection program shall verify	Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction	NA	Required	ACI 530/ ASCE 5/ TMS 402	Inspection report			
Ν	The inspection program shall verify	Specified size, grade, and type of reinforcement.	NA	Required	ACI 530/ ASCE 5/ TMS 402, ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
z	The inspection program shall verify	Welding of reinforcing bars.	Required		ACI 530/ ASCE 5/ TMS 402	Inspection report			
z	The inspection program shall verify	Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	NA	Required	ACI 530/ ASCE 5/ TMS 402, 2104.4, ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
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Inspection			Frequency of Inspectic	u	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,	بر د	Approved
Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	Keport type	including all applicable Amends & Supp	Qualifications	Agency
z	The inspection program shall verify	Application and measurement of pre- stressing force	Ч. Ч.	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
z	Prior to grouting verify	Grout space is clean.	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
z	Prior to grouting verify	Placement of reinforcement and connectors.	A N	Required	ACI 530/ ASCE 5/ TMS 402, ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Ν	Prior to grouting verify	Proportions of site- prepared grout.	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Z	Prior to grouting verify	Construction of mortar joints.	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			

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ECSD Phase 5: 2019 Capital Impre	CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES
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Inspection			Frequency of Inspectic	U0	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,	• •	Approved
Required	Material / W ork	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	keport type	including all applicable Amends & Supp	Juaimcations	Agency
z	Grout placement verify	Grout placement shall be verified to ensure compliance with code and construction document provisions.	Required	AA	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
z	Grout placement verify	Grouting of pre-stressed bonded tendons.	Required	VN	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Z	Preparation of grout observe	Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	Required	AN	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
z	Document compliance verify	Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			

CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES 014533 - 25 **NEWBURGH ECSD** 13740.20

Level 2									
Inspection	(W. and	Soons of Lanceston	Frequency of Inspection	ц	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,	Qualifications.	Approved
Required			Continuous	Periodic	Amends & Suppl	veport type	including all applicable Amends & Supp	Quantications	Agency
Y	Verify to ensure compliance	Proportions of site prepared mortar, pre- stressing grout for bonded tendons	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Y	Verify to ensure compliance	Construction of mortar joints.	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
А	Verify to ensure compliance	Location of reinforcement and connectors, and pre- stressing tendons and anchorages.	NA	Required	ACI 530.1/ ASCE 6/ TMS 602 and ACI 530/ASCE 5/TMS 402	Inspection report			
Z	Verify to ensure compliance	Pre-stressing tendon installation	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Y	Verify to ensure compliance	Grout specs prior to grouting.	Required	NA	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			

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vement Project	014533 - 26
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			Frequency of Inspectio	u	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition		
Inspection Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	Report type	Adopted By AHJ, including all applicable Amends & Supp	Qualifications	Agency
z	Verify to ensure compliance	Grout placement and pre- stressing for bonded tendons	Required	NA	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
z	Verify to ensure compliance	Grouting of pre-stressed bonding tendons	Required	NA	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Y	The inspection program shall verify	Size and location of structural elements	e z	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Y	The inspection program shall verify	Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction	Required	NA	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Х	The inspection program shall verify	Specified size, grade and type of reinforcement	e N	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			

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Inspection			Frequency of Inspecti	01	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,		Approved
Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By Arth, include all applicable Amends & Suppl	керогт туре	including all applicable Amends & Supp	Luanneauons	Agency
z	The inspection program shall verify	Welding of reinforcing bars	Required	AN	ACI 530/ASCE 5/TMS 402	Inspection report			
Y	The inspection program shall verify	Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	NA	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Z	The inspection program shall verify	Application and measurement of pre- stressing force	Required	NA	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
Y	Preparation of grout observe	Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	Required	NA	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			
z	Document compliance verify	Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.	A	Required	ACI 530.1/ ASCE 6/ TMS 602	Inspection report			

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SCHEDULE OF SPECIAL INSPECTIONS

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Inspection	Matarial / Wards	Corne of Lucnortion	Frequency of Inspectic	no	Ref Standard: Most Recent Edition	onort time	Recent Edition Adopted By AHJ,	Outflootions	Approved
Required	Machal / WOLK		Continuous	Periodic	Amends & Suppl	херин сурс	including all applicable Amends & Supp	Qualifications	Agency
А	Site preparation	Prior to placement of the prepared fill.	Prior to placement	YN	Soil report	nspection report			
Υ	Placement of soil	Maximum lift thickness	During placement and 1 compaction of the fill material.	NA	Soil report	nspection report			
Υ	Compaction of soil	Evaluate in-place dry density of compacted fill	During placement and l compaction of the fill material.	AN	Soil report	nspection report			
Z	Bearing soil testing	Test for soil suitable bearing	Prior to work	- VN	Soil report	nspection report			

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SCHEDULE OF SPECIAL INSPECTIONS PILE FOUNDATIONS

Inspection			Frequency of Inspecti	uo	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,		Approved
Required	Waterial / Work	ocope of the pection	Continuous	Periodic	Auopted By Artu, include all applicable Amends & Suppl	keport type	including all applicable Amends & Supp	Juanneauons	Agency
	Pile Foundations	Observe pile installation and load test	Required	NA		inspection report			
Z									

SCHEDULE OF SPECIAL INSPECTIONS PIER FOUNDATIONS

Approved	Agency		
	Quanneauons		
IBCNYS: Most Recent Edition Adopted By AHJ,	including all applicable Amends & Supp		
	керогі іуре	Inspection report	
Ref Standard: Most Recent Edition	Auopted By Arris, include all applicable Amends & Suppl		
on	ion Periodic		
Frequency of Inspecti	requency of Inspectio		
		Observe pier installation	
	Material / WOFK	Pier Foundations in Seismic zone C,D,E,F	
Inspection ,	Required		Z

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SCHEDULE OF SPECIAL INSPECTIONS

WALL PANELS AND VENEERS

Approved	Agency		
	Quannications		
IBCNYS: Most Recent Edition Adopted By AHJ,	including all applicable Amends & Supp		
	report type	Inspection report	
Ref Standard: Most Recent Edition	Auopted by Artu, include all applicable Amends & Suppl		
on	Periodic	ΥN	
Frequency of Inspecti	Continuous	Required	
		Observe pier installation and test	
2 2 2	Material / Work	Wall panels and veneers vin seismic cat. E.F	
Inspection ,	Required		Z

SCHEDULE OF SPECIAL INSPECTIONS

SPRAYED FIRE-RESISTANT MATERIALS

							IBCNVS: Most		
Inspection			Frequency of Inspectio	u	Ref Standard: Most Recent Edition		Recent Edition Adopted By AHJ,		Approved
Required	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	ceport type	including all applicable Amends & Supp	Ualifications	Agency
Z	Substrate	Inspect structural member surface conditions.	Prior to the application of the sprayed fire-resistant material.	Υ _Λ	Approved fire- resistance design & manufacturer's written instructions	nspection report			
	Application	Verify application temperature and manufactures written instructions	Prior to the application of the sprayed fire-resistant material.	VN.	Manufactures written I instructions	nspection report			

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Inspection	41=0/XX / 10;=00;00	C	Frequency of Inspecti	on	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,	Out of the south out	Approved
Required	Material / WOFK	scope of the pector	Continuous	Periodic	Auopted by Artu, include all applicable Amends & Suppl	xeport type	including all applicable Amends & Supp	Qualifications	Agency
z	Thickness	Sample inspection of Floor, Roof, and Wall Assemblies:	Average not less than four measurements per 1,000 sf sprayed area on each floor or part thereof.	NA	ASTM E605	inspection report			
z	Thickness	Sample inspections, Structural members	Not less than 25 percent of the structural members on each floor	NA	ASTM E605	inspection report			
Z	Density	Sample inspections, Structural members	Perform density test on all bond strength samples taken	NA	ASTM E605	inspection report			
z	Bond Strength	Sample inspection, Floor, Roof, and Wall Assemblies:	Not less than one sample per 10,000 sf or part thereof of sprayed area from each floor, roof, and wall assembly in each storv.	AN	ASTM E 736	inspection report			

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ection			Frequency of Inspection	U	Ref Standard : Most Recent Edition		IBCNYS: Most Recent Edition Adonted Bv AHJ.		Annroved
uired	Material / Work	Scope of Inspection	Continuous	Periodic	Adopted By AHJ, include all applicable Amends & Suppl	Report type	including all applicable Amends & Supp	Qualifications	Agency
	Bond Strength	Sample inspection,	Not less than one	NA	ASTM E 736	Inspection report			
		Structural framing	sample for each beam,						
		members:	girder, joist, truss, and						
z			column per 10,000 sf						
			of floor area or part						
			thereof in each story.						

SCHEDULE OF SPECIAL INSPECTIONS

EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

Inspection			Frequency of Inspecti	on	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,		Approved
Required	Waterial / Work	Scope of the pection	Continuous	Periodic	Autopicu by Arru, include all applicable Amends & Suppl	херигі цуре	including all applicable Amends & Supp	Qualifications	Agency
	EIFS	Inspection of application	Required	NA	Per manufacturer				
Z									

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SCHEDULE OF SPECIAL INSPECTIONS

SPECIAL CASES

Inspection			Frequency of Inspecti	on	Ref Standard: Most Recent Edition		IBCNYS: Most Recent Edition Adopted By AHJ,		Approved
Required	Material / W OF K	ocobe of this bectron	Continuous	Periodic	Auopted by Artu, include all applicable Amends & Suppl	xeport type	including all applicable Amends & Supp	Quantications	Agency
z	Alternative materials	TBD				nspection report			
z	Unusual designs	TBD				nspection report			
z	Material not covered in code	TBD				nspection report			

END OF SECTION – 014533

9/28/2021

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary field offices for use of Construction Manager.
- B. Maintenance and removal.

1.02 RELATED REQUIREMENTS

- A. Section 015000 Temporary Facilities and Controls:
 - 1. Temporary telecommunications services for administrative purposes.
 - 2. Temporary sanitary facilities required by law.
 - 3. Electrical Service for power

PART 2 PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

- A. The General Contractor shall supply for the Construction Manager use a building or mobile trailer which shall be erected at a location selected by the Contruction Manager and shall be separate from any building used by the Contractor.
- B. Materials, Equipment, Furnishings: Serviceable, new or used, adequate for required purpose.

2.02 CONSTRUCTION

- A. Portable or mobile buildings, or trlers constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors. Field office building sh
- B. Construction: Structurally sound, secure, weather tight enclosures for office. Maintain during progress of Work; remove when no longer needed.
- C. Temperature Transmission Resistance of Floors, Walls, and Ceilings: Compatible with occupancy requirements.
- D. Interior Materials in Offices: Sheet type materials for walls and ceilings, prefinished or painted; resilient floors and bases.
- E. Lighting for Offices: 100 foot candles at desk top height, exterior lighting at entrance doors.
- F. Fire Extinguishers: Appropriate type fire extinguisher at each office.

2.03 ENVIRONMENTAL CONTROL

A. Heating, Cooling, and Ventilating: Automatic equipment to maintain comfort conditions. (ambient air temperature of 70 degrees of 70 F +/- 5 degrees.

2.04 CONSTRUCTION MANAGER OFFICE

- A. Separate space for sole use of Construction Manager, with separate entrance door with new lock and two keys.
- B. Area: At least 400 sq ft, with minimum dimension of 8 ft.
- C. Windows: At least 6, with minimum total area equivalent to 10 percent of floor area, with an operable sash and insect screen. Locate to provide views of construction area.
- D. Electrical Distribution Panel: 200 amp minimum, 240 volt, 60 hz service.
- E. Electrical Service to be provided by Electrical Contractor in accordance with Section 01 5000 - Temporary Facilities and Controls or by the General Contractor if there is no Electrical Contract.
- F. Minimum 8 110 volt duplex convenience outlets, two on each wall.
- G. High Speed Internet Service: The General Contractor shall provide wireless, high speed internet service to the Contruction Manager's field office. Initial hook-up costs and monthly high speed internet cost shall be the General Contractors responsibility.
- H. First Aid Kit: The General Contractor shall keep the kit propperly stocked with appropriate first aid supplies at all times.
- I. Sanitary Facilities: Provide lavatory and toilet facilities.

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- J. Drinking Fountain: The General Contractor shall provide a water cooler for the Contruction Manger's office. Provide adequate supply of water and cups throghout the duration of the project.
- K. Furnishings:
 - 1. Two desk 54 by 30 inch, with three drawers.
 - 2. One drafting table 36 by 72 inch, with one equipment drawer and a 48 inch wide parallel straight edge.
 - 3. One 11x17 inch printer.
 - 4. One metal, double door storage cabinet under table.
 - 5. One metal, double-door storage cabinet under table.
 - 6. Plan rack to hold working drawings, shop drawings, and record documents.
 - 7. One fire resistant standard four-drawer legal size metal filling cabinet with locks and two keys per lock. Fire resistant cabinet shall meet the requirements for "insulating filling devices, class 350-1 Hour(D)" of ANSI/UL 72.
 - 8. Six linear ft of metal bookshelves.
 - 9. Two swivel arm chairs.
 - 10. Two straight chairs.
 - 11. Two drafting table stool.
 - 12. One tackboard 36 by 30 inch.
 - 13. One waste basket per desk and table.
 - 14. Scanner/copier/printer machine with a regular supply of 8-1/2 inch x11 inch paper, 11 inch x 17 inch paper, and toner.
 - 15. At the completion of the Construction Project, the field office and its contents provided bt the General Contractor, with the exception of the Architect/ Engineers/ Resident Project Representative project files, shall be returned to the General Contractor.

PART 3 EXECUTION

3.01 PREPARATION

A. Fill and grade sites for temporary structures to provide drainage away from buildings.

3.02 INSTALLATION

- A. Install office spaces ready for occupancy 15 days after date fixed in Notice to Proceed.
- B. The Building shall be fully equipped and made available for use and occupancy by the Construction Manager prior to the start of any Contract Work. Such use and occupancy shall be made available after the work has been accepted by the Construction Manager.
- C. Parking: 5 hard surfaced parking spaces for use by Construction Manager and Architect/ Engineer, connected to office by appropriate walk.

3.03 MAINTENANCE AND CLEANING

- A. The General Contractor shall provide Weekly janitorial services for the Construction Manager's field office; Each contractor is responsible for periodic cleaning and maintenance for project field offices.
- B. All building shall be maintained in good condition and appearance by the Contractor for the designated period after which all portable buildings or trailers, fencing, surfacing, and utilities shall be removed from the location, the areas cleaned, loamed, and seeded if required, and left in a neat and acceptable condition.
- C. The contractor shall be responsible, until use anf occupancy of the office and building is relinquished by the Owner, for any and all damage, direct or indirect, of whatever nature,occuring to the property of the Owner's Construction Manager which is kept in any office building that the Contractor is required to furnish as an intem(s) of the Contract. Such damages woulld include any loss caused by, but not limited to, fire, theft, vandalism, or malicious mischief.
- D. Maintain approach walks free of mud, water, and snow.

3.04 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

B. Construction Manager's office and all associated services shall not be removed from the site until the time of final acceptance of the contract work.

END OF SECTION

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SECTION 016000 PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for products selected under an allowance.
 - 2. Section 012300 "Alternates" for products selected under an alternate.
 - 3. Section 012500 "Substitution Procedures" for requests for substitutions.
 - 4. Section 012519 "Equivalents" for equivalent products submitted prior to Contract award.
 - 5. Section 014200 "References" for applicable industry standards for products specified.

1.02 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.03 ACTION SUBMITTALS

- A. Comparable Product Requests: After award of contract submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within 10 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.04 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

- 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
- 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 6. Protect stored products from damage and liquids from freezing.
 - 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.06 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 4. Where products are accompanied by the term "as selected," Architect will make selection.
 - 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 - 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - 3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - b. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
 - 4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - b. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 - 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

- 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.02 EQUIVALENT PRODUCTS

- 1. Retain this Article if equivalent products are to be submitted prior to contract award.
- A. Conditions for Consideration: Architect will consider Contractor's request for equivalent product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 - 5. Samples, if requested.
- B. Refer to specification section 012519 Equivalents for additional equivalent product requirements required to be furnished by the contractor prior to execution of the contract.

PART 3 EXECUTION (NOT USED)

END OF SECTION 016000

SECTION 017300 EXECUTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
- B. Related Requirements:
 - 1. Division 01 "Summary" for limits on use of Project site.
 - 2. Division 01 "Submittal Procedures" for submitting surveys.
 - 3. Division 01 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
 - 4. Division 02 "Selective Demolition" for demolition and removal of selected portions of the building.
 - 5. Division 07 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.02 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.03 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 or Insert number days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by professional engineer.

F. Final Property Survey: Submit 2 copies showing the Work performed and record survey data.

1.04 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - Structural Elements: When cutting and patching structural elements, notify Architect
 of locations and details of cutting and await directions from Architect before
 proceeding. Shore, brace, and support structural elements during cutting and
 patching. Do not cut and patch structural elements in a manner that could change
 their load-carrying capacity or increase deflection
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and -alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
 - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

a.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.02 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.03 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.

- B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.04 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 - 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.05 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.06 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch extending to an inside or outside corner of a wall. Provide additional coats until patch blends with adjacent surfaces.
 - 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an evenplane surface of uniform appearance.
 - 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.07 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

- 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
- 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
- Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 a. Use containers intended for holding waste materials of type to be stored.
- 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.08 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.09 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01730

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SECTION 017700 CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for progress cleaning of Project site.
 - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 4. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.
 - 5. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.02 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.03 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.04 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.05 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete. The Architect will not perform a punch list inspection until the contractor's punch list is received and reviewed.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 30 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

- 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Construction Manager's signature for receipt of submittals.
- 5. Submit test/adjust/balance records.
- 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 30 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Complete startup and testing of systems and equipment
 - 3. Submit test/adjust/balance records.
 - 4. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 5. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - a. Complete startup testing of systems.
 - 6. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 - 7. Touch up paint and otherwise repair and restore damaged finishes.
 - 8. Complete final cleaning requirements, including touchup painting
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 30 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - a. The Architects basic services include (1) initial punch list and (1) follow-up punch list inspection to ensure all corrective action and or incomplete work has been finished. The Contractor is responsible to the Owner for all costs incurred by the Architect for additional services to provide multiple punch lists for the same work area. The cost for these additional services, may be deducted from the Contractors Contract by deduct Change Order.
 - 2. Results of completed inspection will form the basis of requirements for final completion.

1.06 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 - 1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 - 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit pest-control final inspection report.

- 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
- 5. Advise Owner of pending insurance changeover requirements.
- 6. Advise Owner of changeover in heat and other utilities.
- 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
- 8. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
- 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- 10. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
- 11. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
- 12. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
- B. Inspection: Submit a written request for final inspection to determine acceptance, a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.07 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date
 - c. Name of Architect and Construction Manager.
 - d. Name of Contractor.
 - e. Page number.
 - 4. Submit list of incomplete items in the following format:
 - a. PDF electronic file. Architect ,through Construction Manager, will return annotated file.

1.08 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

- 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
- Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark 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 Installer.
- 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 EXECUTION

3.01 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
- k. Remove labels that are not permanent.
- I. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
- p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- q. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.02 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 017700

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SECTION 017823 OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Product maintenance manuals.
 - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
 - 1. Section 011200 "Multiple Contract Summary" for coordinating operation and maintenance manuals covering the Work of multiple contracts.
 - 2. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 3. Section 019113 "General Commissioning Requirements" for verification and compilation of data into operation and maintenance manuals.
 - 4. Divisions 02 through 49 Sections for any specific closeout requirements for the Work in those Sections.

1.02 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.03 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect and Commissioning Authority will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
 - . PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
 - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
 - b. Enable inserted reviewer comments on draft submittals.
 - 2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect ,through Construction Manager, will return two copies.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

PART 2 PRODUCTS

2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- C. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.02 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.
 - 6. Name and contact information for Construction Manager.
 - 7. Name and contact information for Architect.
 - 8. Name and contact information for Commissioning Authority.
 - 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 - 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
 - 1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents , and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
 - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 - 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.03 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 - 1. Type of emergency.
 - 2. Emergency instructions.
 - 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.

- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

2.04 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor has delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 - 1. Product name and model number. Use designations for products indicated on Contract Documents.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 - 1. Startup procedures.
 - 2. Equipment or system break-in procedures.
 - 3. Routine and normal operating instructions.
 - 4. Regulation and control procedures.
 - 5. Instructions on stopping.
 - 6. Normal shutdown instructions.
 - 7. Seasonal and weekend operating instructions.
 - 8. Required sequences for electric or electronic systems.
 - 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

2.05 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and

telephone number of Installer or supplier and maintenance service agent, and crossreference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.06 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 EXECUTION

3.01 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of operation and maintenance manuals.
 - 2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- G. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017839 PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Division 01 "Multiple Contract Summary" for coordinating project record documents covering the Work of multiple contracts.
 - 2. Division 01 "Execution" for final property survey.
 - 3. Division 01 "Closeout Procedures" for general closeout procedures.
 - 4. Division 01 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 5. Divisions 02 through 49 Sections for specific requirements for project record documents of the Work in those Sections.

1.02 CLOSEOUT SUBMITTAL

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints and [one] or Insert number of file prints.
 - 2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit PDF electronic files of scanned record prints and three of prints.
 - 2) Print each drawing, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.03 RECORD DRAWINGS

- A. Record Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record drawings to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.

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- c. Record data as soon as possible after obtaining it.
- d. Record and check the markup before enclosing concealed installations.
- e. Cross-reference record prints to corresponding archive photographic documentation.
- 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or [Construction] [Work] Change Directive.
 - k. Changes made following Architect's written orders.
 - I. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
- 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
- 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
- 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- 7. Submit as indicated in the Article 1.2 final submittal.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record drawings with Architect and Construction Manager. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 - 1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 - 2. Format: Annotated PDF electronic file.
 - 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 - 4. Refer instances of uncertainty to Architect through Construction Manager for resolution.
 - 5. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 6. Architect will furnish Contractor one set of digital data PDF files of the Contract Drawings for use in recording information.
 - a. See Section 013300 "Submittal Procedures" for requirements related to use of Architect's digital data files.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
 - 1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 - 2. Consult Architect and Construction Manager for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
 - 3. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

4. Submit as indicated in the Article 1.2 final submittal.

1.04 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 - 5. Note related Change Orders ,record Product Data, and record Drawings where applicable.
 - 6. Submit as indicated in the Article 1.2 final submittal

1.05 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders ,record Specifications, and record Drawings where applicable.
 - 4. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.
 - 5. Submit as indicated in the Article 1.2 final submittal

1.06 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.
 - 2. Submit as indicated in the Article 1.2 final submittal

PART 2 PRODUCT (NOT USED)

PART 3 EXECUTION

3.01 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's and Construction Manager's reference during normal working hours.

END OF SECTION 017839

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SECTION 017900 DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Demonstration and training video recordings.

1.02 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.03 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information: a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Date of video recording.
 - 2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
 - 3. At completion of training, submit complete training manual(s) for Owner's use prepared and bound in format matching operation and maintenance manuals and in PDF electronic file format on a USB Drive.

1.04 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.

- 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
- 3. Review required content of instruction.
- 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.05 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

1.06 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 - Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.

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- h. Normal shutdown instructions.
- i. Operating procedures for emergencies.
- j. Operating procedures for system, subsystem, or equipment failure.
- k. Seasonal and weekend operating instructions.
- I. Required sequences for electric or electronic systems.
- m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

1.07 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.08 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
 - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 3. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.09 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video: Provide minimum 1080 video resolution converted to .mp4 format file type, on electronic media.
 - 1. Electronic Media: Read-only format compact disc with commercial-grade graphic label or flash drive as acceptable to Owner,
 - 2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
 - 3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.
 - 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. E-mail address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
 - 1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
 - 1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by audio narration by microphone while dubbing audio narration off-site after video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION 017900

SECTION 024100 DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Building demolition excluding removal of hazardous materials and toxic substances.
- B. Selective demolition of building elements for alteration purposes.
- C. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

- A. Section 011000 Summary: Limitations on Contractor's use of site and premises.
- B. Section 011000 Summary: Sequencing and staging requirements.
- C. Section 011000 Summary: Description of items to be salvaged or removed for re-use by Contractor.
- D. Section 015000 Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- E. Section 016000 Product Requirements: Handling and storage of items removed for salvage and relocation.
- F. Section 017000 Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- G. Section 312200 Grading: Topsoil removal.
- H. Section 312323 Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 U.S. Occupational Safety and Health Standards current edition.
- B. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations 2019.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Site Plan: Showing:
 - 1. Areas for temporary construction and field offices.
 - 2. Areas for temporary and permanent placement of removed materials.
- C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
 - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
 - 2. Identify demolition firm and submit qualifications.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.1. Minimum of 5 years of documented experience.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 312323 -Fill.

PART 3 EXECUTION

3.01 SCOPE

A. Full structure removal. Remove the entire building portion shown on the demolition drawings.

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- B. Selective Demolition. Remove building elements of existing building portions to remain, as indicated on drawings.
- C. Remove foundation walls and footings in their entirety. below finished grade.
- D. Remove concrete slabs on grade .
- E. Remove other items indicated, for salvage and relocation.
- F. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section in section 312000.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with other requirements specified in Section 017000.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Use of explosives is not permitted.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Provide, erect, and maintain temporary barriers and security devices.
 - 5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 6. Do not close or obstruct roadways or sidewalks without permit.
 - 7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 - 8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- C. Do not begin removal until receipt of notification to proceed from Construction Manager .
- D. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- F. If hazardous materials are discovered during removal operations, stop work and notify Construction Manager; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification toConstruction Manager
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to .Construction Manager .
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

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3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Construction Manager before disturbing existing installation.
 - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
 - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 - 2. Remove items indicated on drawings.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - 3. See Section 011000 for other limitations on outages and required notifications.
 - 4. Verify that abandoned services serve only abandoned facilities before removal.
 - 5. Remove abandoned pipe, ducts, conduits, and equipment; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- F. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; .
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 028213 – ASBESTOS ABATEMENT

- AT: VALES GATE STEAM ACADEMY PHASE 5: 2019 CAPITAL IMPROVEMENTS PROJECT 400 OLD FORGE HILL ROAD NEW WINDSOR, NEW YORK 12553 SED # 44-16-00-01-0-018-009
- OWNER: NEWBURGH ECSD 124 GRAND STREET NEWBURGH, NEW YORK 12550 PH. (845) 563-3400

CONSULTANT: QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC. (QUES&T) 1376 ROUTE 9 WAPPINGERS FALLS, NEW YORK 12590 PH. (845) 298-6031 FX. (845) 298-6251



SPECIFICATION DATED:

PART I – GENERAL

1.01 DESCRIPTION

- A. All work under this contract shall be performed in strict accordance with the specifications and all applicable laws for asbestos removal projects. The Abatement Contractor shall furnish all labor, materials, supervision, services, insurance and equipment necessary for the complete and total removal of Asbestos-containing Materials (ACM) as described herein, in attachments to the specification, Job Specific Variance(s) and/or as directed by Newburgh ECSD (here-in-after the "Owner") and/or the Owners Representative(s) to support the to the following Newburgh ECSD projects:
 - Vales Gate STEAM Academy Phase 5: 2019 Capital Improvements Project 400 Old Forge Hill Road New Windsor, New York 12553 Sed # 44-16-00-01-0-018-009
- B. Abatement Contractor shall provide for personnel air monitoring to satisfy OSHA regulation 29 CFR Parts 1926.1101(f). All work performed shall be in strict accordance with applicable provisions and regulations promulgated under New York State Department of Labor, Industrial Code 56 (ICR-56).
- C. The Abatement Contractor shall satisfy the requirements for asbestos projects issued by the New York State Department of Labor concerning licensing and certification; notification; equipment; removal and disposal procedures; engineering controls; work area preparation; decontamination and clean-up procedures; and personnel air monitoring.
- D. The Abatement Contractor shall be responsible for submittal of asbestos project notification(s) and applicable fees to EPA and NYSDOL concerning this project. Project notification(s) shall be made for the cumulative total of ACM to be removed as required by ICR-56-3.4. Work practices for each individual work area established shall be consistent with the quantity of ACM contained within that work area as defined in ICR-56-2.
- E. The scope of work under this contract shall include the following:
 - 1. All asbestos-containing materials (ACM) shall be removed in accordance with these specifications. The Abatement Contractor is responsible for field verification of estimated quantities, locations and other site conditions that may affect work.
 - 2. All fixed objects remaining within the work area(s) shall be protected as required by Title 12 NYCRR Section 56-7.10(b) and as described in these specifications.
 - 3. The containerization, labeling and disposal of all asbestos waste in accordance with applicable city, state and federal regulations and these specifications.
 - 4. The Abatement Contractor will be responsible for repairing all building components damaged during abatement including, but not limited to, ceiling tiles, ceiling finishes, wall finishes and/or floor finishes, etc.

- 5. The Abatement Contractor shall be responsible for any and all demolition required to access materials identified in scope of work and on associated drawings.
- 6. Concealed conditions that are exposed and may require additional work shall be brought to the attention of the Owner(s) immediately. The Abatement Contractor shall not abate these areas without a written notice to proceed. If the Abatement Contractor removes additional asbestos prior to the order to proceed the additional work will not be acknowledged.
- 7. Permissible working hours shall be Monday through Friday 7:00 A.M. to 4:00 P.M. with one (1) hour for lunch and/or as defined by the Owner. Holidays shall be considered weekends and not included for working days. Upon written approval from the Owner, the Abatement Contractor may work past these hours. The Abatement Contractor will incur any and all costs associated for work performed beyond the defined schedule including, but not limited to: abatement activities, project/air monitoring, custodial/staffing labor, overtime, mobilizations, etc.
- 8. Buildings will be turned over to the Abatement Contractor as is. At that time, all electrical services and HVAC systems in the proposed work areas will be shut down. Electricity and water supply will be maintained in the building for use by the Abatement Contractor. The Abatement Contractor is responsible for securing all power in the work area(s) and establishing all temporary GFCI hookups necessary to complete his work.
- 9. The Abatement Contractor shall remove identified asbestos-containing floor coverings to the building substrate beneath; in areas indicted. Subsequent to final air clearances, the substrate(s) shall be washed with a neutralizing agent to prepare the substrate to accept new floor covering and eliminate residual odors.
- 10. The Abatement Contractor must coordinate location of waste containers with the Facility and the Owner. Deliveries and storage of equipment must be coordinated with the Facility and the Owner.
- 11. All "Large" and "Small" asbestos abatement projects, as defined by 12 NYCRR56 shall not be performed while the building is occupied. The term "building" means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction. The isolated portion of the building must contain exists that do not pass through the occupied portion(s) and ventilation systems must be physically separated and sealed at the isolation barriers.

1.02 PRE-CONTRACT SUBMITTALS

Within three (3) days after bids are opened, the three (3) apparent low bidders shall be required to submit the following documentation:

- A. Resume': Shall include the following:
 - 1. Provide a list of projects of similar nature performed within the past two (2) years and include the dollar value of all projects. Provide project references to include owner, consultant, and air monitoring firms' name, contact person, address, and phone number, include location of project and date of completion.
 - 2. Abatement Contractor license issued by New York State Department of Labor for asbestos work in accordance with ICR-56-3.
 - 3. A list of owned equipment available to be used in the performance of the project.
 - 4. The number of years engaged in asbestos removal.
 - 5. An outline of the worker training courses and medical surveillance program conducted by the Abatement Contractor.
 - 6. A standard operating procedures manual describing work practices and procedures, equipment, type of decontamination facilities, respirator program, special removal techniques, etc.
 - 7. Documentation to the satisfaction of the Owner pertaining to the Abatement Contractor's financial resources available to perform the project. Such data shall include, but not be limited to, the firm's balance sheet for the last fiscal year.
- B. Citations/Violations/Legal Proceedings
 - 1. Submit a notarized statement describing any citations, violations, criminal charges, or legal proceedings undertaken or issued by any law enforcement, regulatory agency, or consultant concerning performance on previous asbestos abatement contracts. Briefly describe the circumstances citing the project and involved persons and agencies as well as the outcome of any actions.
 - 2. Answer the question: "Has your firm or its agents been issued a Stop Work order on any project within the last two years?" If "Yes" provide details as discussed above.
 - 3. Answer the question: "Are you now, or have you been in the past, a party to any litigation or arbitrations arising out of your performance on Asbestos Abatement Contracts?" If "Yes" provide details as discussed in 1. above.
 - 4. Describe any liquidated damages assessed within the last two years.
- C. Preliminary Schedule
 - 1. Provide a detailed schedule including work dates, work shift times, estimate of manpower to be utilized and the start and completion date for completion of each major work area.

1.03 DOCUMENTATION

- A. The Abatement Contractor shall be required to submit the following and receive the Consultant's approval prior to commencing work on this project:
 - 1. Provide documentation of worker training for each person assigned to the project. Documentation shall include copies of each workers valid New York State asbestos handler certificates (for those employees who may perform asbestos removal), documentation of current respirator fit test and current OSHA required training and medical examination.
 - 2. The attached "Asbestos Employee Medical Examination Statement" and "Asbestos Employee Training Statement" forms shall be completed, signed and submitted for each worker assigned to the project. Records of all employee training and medical surveillance shall be maintained for at least forty (40) years. Copies of the records shall be submitted to the Consultant prior to commencement.
 - 3. The Abatement Contractor shall submit proof of a current, valid license issued by the New York State Department of Labor pursuant to the authority vested in the Commissioner by section 906 of the Labor Laws, and that the employees performing asbestos related work on this project are certified by the State of New York as required in Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York latest edition. Copies of all licenses shall be submitted prior to the commencement of the project.
 - 4. The Abatement Contractor shall submit a written respiratory protection program meeting the requirements of 29 CFR 1910.134 to the Consultant.
 - 5. The name, address, social security number and NYS DOL certificate number of the person(s) who will supervise the asbestos project.
 - 6. The name and address of the deposit or waste disposal site or sites where the asbestos materials are to be deposited or disposed of. This site must be approved by the Owner. The manifesting procedure must also be specified.
 - 7. The name, address and New York State Dept. of Environmental Conservation ID Number of any transporters that are to be used to transport waste.
 - 8. A written Standard Operation Procedure (SOP) that is designed and implemented to maximize protection against human exposure to asbestos dust. The SOP shall take into consideration the workers, visitors, building employees, general public and environment. As a minimum the procedures must include the following:
 - a. Security for all work areas on an around-the-clock basis against unauthorized access.
 - b. Project organization chart including the phone numbers of at least two responsible persons who shall be authorized to dispatch men and equipment to the project in the event of an emergency; including weekends.
 - c. Description of protective clothing and NIOSH approved respirators to be used.
 - d. Description of all removal methods to be used, including HEPA air filtration and decontamination sequence with special emphasis on any procedure that may deviate from these specifications.

- e. A list of manufacturers' certificates stating that all vacuums, negative air filtration equipment, respirators and air supply equipment meet OSHA and EPA requirements.
- f. A list of all materials proposed to be furnished and used under this contract.
- g. Emergency evacuation procedures in the event of fire, smoke or accidents such as injury from falling, heat exposure, electrical shock, etc.
- h. The name, address and ELAP number of the New York State Department of Health Certified Analytical Testing Laboratory the Contractor proposes to use for the OSHA monitoring.
- 9. A detailed plan, in triplicate, for the phasing of the project, division of work areas and location of decontamination facilities, waste containers and temporary office.
- 10. Work schedule, identifying firm dates and completion for actual areas. Bar chart or critical path chart indicating phases is required.
- B. The Abatement Contractor shall post their NYS DOL contractor's license and maintain a daily log documenting the dates and time of the following items within each personal decontamination unit:
 - 1. Meetings; purpose, attendants, discussion (brief)
 - 2. Sign-in and sign-out of all persons entering the work area including name, date, time, social security number, position or function and general description of daily activity.
 - 3. Testing of barriers and enclosure systems using smoke tubes prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.
 - 4. Inspection of all plastic barriers, twice daily, by the asbestos supervisor.
 - 5. Loss of enclosure integrity; special or unusual events, barrier breaches, equipment failures, etc.
 - 6. Daily cleaning of enclosures.
 - 7. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.
- C. Documentation with confirmation signature of Consultant's representative of the following shall be provided by the Abatement Contractor at the final closeout of the project.
 - 1. Testing of barriers and enclosure systems using smoke tubes shall be performed prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.
 - 2. Inspection of all plastic barriers.
 - 3. Removal of all polyethylene barriers.
 - 4. Consultant's inspections prior to encapsulation.

- 5. Removal of waste materials.
- 6. Decontamination of equipment (list items).
- 7. Consultant's final inspection/final air tests.
- D. The Abatement Contractor shall provide records of <u>all</u> project information, to include the following which shall be submitted upon completion of the project and prior to approval of the Abatement Contractor's payment application:
 - 1. The location and description of the abatement project.
 - 2. The name, address and social security number of the person(s) who supervised the asbestos project.
 - 3. Certified payroll documentation Pursuant to Article 8, Section 220 of the NYS Labor Law
 - 4. Copies of EPA/NYSDOL Asbestos Certificates for all Workers and Supervisors employed on the Project.
 - 5. Copies of Medical Approval and Respirator Fit-testing for all Asbestos Workers and Supervisors employed on the Project.
 - 6. Copies of Abatement Contractors Daily Sign-In Sheets & Logs for persons entering and leaving the work area. Title 12 NYCRR Part 56-7.3.
 - 7. Copies of Abatement Contractor's personal air sampling laboratory results.
 - 8. The amounts and type of asbestos materials that was removed, enclosed, encapsulated, or disturbed.
 - 9. The name and address of the deposit or waste disposal site or sites where the asbestos waste materials were deposited or disposed of and all related manifests, receipts and other documentation associated with the disposal of asbestos waste.
 - 10. The name and address of any transporters used to transport waste and all related manifests, receipts and other documentation associated with the transport of asbestos waste.
 - 11. All other information that may be required by state, federal or local regulations.
 - 12. Copy of the Supervisor's Daily Project Log of events as described in 1.03 B, above.

1.04 NOTIFICATIONS AND PERMITS

- A. The Abatement Contractor shall be required to prepare and submit notifications to the following agencies at least ten (10) days prior to the commencement of the project:
 - Asbestos NESHAPS Contact U.S. Environmental Protection Agency NESHAPS Coordinator, Air Facilities Branch 26 Federal Plaza New York, New York 10007 (212) 264-7307
 - State of New York Department of Labor Division of Safety and Health Asbestos Control Bureau State Office Building Campus, Building 12, Room 454 Albany, New York 12240
 - 3. Owner(s): Newburgh ECSD 124 Grand Street Newburgh, NY 12550 ATTN: Anibal Velez Ph. (845) 563-3400 E-mail. <u>avelez@necsd.net</u>
 - 4. Owner's Representative(s): Clark Patterson Lee 50 Front Street Newburgh, NY 12550 ATTN: Lauren Tarsio Ph. (518) 915-7456 E-mail. <u>ltarsio@cplteam.com</u>
 - 5. Environmental Consultant(s): Quality Environmental Solutions & Technologies, Inc. (QuES&T) 1376 Route 9 Wappingers Falls, New York 12590 ATTN: Larry Goldstein Ph. (845) 298-6031 Fx. (845) 298-6251 E-mail. LGoldstein@qualityenv.com

- B. The notification shall include but not be limited to the following information:
 - 1. Name and address of Owner.
 - 2. Name, address and asbestos handling license number of the Abatement Contractor.
 - 3. Address and description of the building, including size, age, and prior use of the building or area; the amount, in square feet or linear feet of asbestos material to be removed; room designation numbers or other local information where asbestos material is found, including the type of asbestos material (friable or non-friable).
 - 4. Scheduled starting and completion dates for removal.
 - 5. Methods to be employed in abating asbestos containing materials.
 - 6. Procedures and equipment, including ventilating/exhaust systems, that will be employed to comply with the Code of Federal Regulation (CFR) Title 40, Part 61 of the U.S. Environmental Protection Agency.
 - 7. The name and address of the carting company and of the waste disposal site where the asbestos waste will be deposited.

NOTE: Notifications shall be submitted using standard forms as may be used by the respective agency.

For DOL (NYS) include "Asbestos Project Notification" form (DOSH-483) with proper fee, if required. For EPA include "Notification of Demolition and Renovation"; 40 CFR Part 61.

- C. The Abatement Contractor shall secure any permits required by the city, town, county, or state that may be required and the cost for obtaining the permit shall be included in his base bid.
- D. The Abatement Contractor shall erect warning signs around the work space at every point of potential entry into the work area in accordance with OSHA 1926.58k (2), (i). These signs shall bear the following information:

DANGER

CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

E. The Abatement Contractor shall post at entrances to the work place and immediate adjacent areas, notifications to building occupants, which include the name and license number of the contractor, project location and size, amount and type of ACM, abatement procedures, dates of expected occurrence and name and address of the air monitor and laboratory in compliance with ICR 56-3.6.

F. The Abatement Contractor shall post a list of emergency telephone numbers at the job site which shall include the Owner's Representative, police, emergency squad, local hospital, Environmental Protection Agency, N.Y. State Department of Labor, Occupational Safety and Health Administration and the local Department of Health.

1.05 APPLICABLE STANDARDS

Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, applicable standards of the construction industry have the same force and effects (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith. Resolution of overlapping and conflicting requirements, which result from the application of several different industry standards to the same unit of work, shall be by adherence to the most stringent requirement.

A. Applicable standards listed in these Specifications form a part of this Specification and include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. ANSI:

American National Standards Institute 1430 Broadway New York, New York 10018

2. ASHRAE:

American Society for Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle NE Atlanta, Georgia 30329

3. ASTM:

American Society for Testing and Materials 1916 Race Street Philadelphia, Pennsylvania 19103

4. CFR

Code of Federal Regulations Available from Government Printing Office Washington, District of Columbia 20402

5. CGA

Compressed Gas Association 1235 Jefferson Davis Highway Arlington, Virginia 22202

6. CS

Commercial Standard of NBS (US Dept. of Commerce) Government Printing Office 7. EPA

Environmental Protection Agency, Region II 26 Federal Plaza New York, New York 10007 Asbestos Coordinator - Room 802 (212) 264-9538 Part 61, Sub-Parts A & B National Emission Standard for Asbestos

8. FEDERAL SPECS

Federal Specification (General Services Administration) 7th and D Street, SW Washington, District of Columbia 20406

9. NBS

National Bureau of Standards (US Department of Commerce) Gaithersburg, Maryland 20234

10. NEC

National Electrical Code (by NFPA)

11. NFPA

National Fire Protection Association Batterymarch Park Quincy, Massachusetts 02269

12. NIOSH

National Institute for Occupational Safety and Health 26 Federal Plaza New York, New York 10007

13. NYSDOH

New York State Department of Health Bureau of Toxic Substance Assessment Room 359 - 3rd Floor Tower Building Empire State Plaza Albany, New York 12237

14. NYSDEC

New York State Department of Environmental Conservation Room 136 50 Wolf Road Albany, New York 12233-3245

15. NYSDOL

State of New York Department of Labor Division of Safety and Health Asbestos Control Program State Campus, Building 12 Albany, New York 12240

16. OSHA

Occupational Safety and Health Administration (US Department of Labor) New York Regional Office - room 3445 1515 Broadway New York, New York 10036

17. UL

Underwriters Laboratories 333 Pfingsten Road Northbrook, Illinois 60062

- B. Federal Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:
 - 1. U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA):
 - a. Asbestos Regulations Title 29, Part 1910, of the Code of Federal Regulations.
 - Respiratory Protection Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
 - c. Construction Industry Title 29, Part 1926, of the Code of Federal Regulations.
 - d. Access to Employee Exposure & Medical Records Title 29, Part 1910, Section 20 of the Code of Federal Regulations.
 - e. Hazard Communication Title 29, Part 1910, Section 1200 of the Code of Federal Regulations.
 - f. Specifications for Accident Prevention Signs and Tags Title 29, Part 1910, section 145 of the Code of Federal Regulations.
 - 2. U.S. Environmental Protection Agency (EPA):
 - a. Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Subpart E of the Code of Federal Regulations.
 - Worker Protection Rule
 40 CFR Part 763, Subpart G, CPTS 62044, FLR 2843-9
 Federal Register, Vol. 50, No. 134, 7/12/85, P28530-28540
 - c. Regulation for Asbestos Title 40, Part 61, Subpart A of the Code of Federal Regulations
 - d. National Emission Standard for Asbestos Title 40, Part 61, Subpart M (Revised Subpart B) of the Code of Federal Regulations

- e. Resource Conservation and Recovery Act (RCRA) 1976, 1980 Hazardous and Solid Waste Amendments (HSWA) 1984 Subtitle D, Subtitle C
- 3. U.S. Department of Transportation (DOT):
 - a. Hazardous Substances: Final Rule Regulation 49 CFR, Part 171 and 172.
- C. State Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:
 - 1. New York State Department of Environmental Conservation (DEC) Regulations regarding waste collection registration. Title 6, Part 364 of the New York State Official Compilation of Codes, Rules and Regulations 6NYCRR 364.
 - 2. New York State Right-To-Know Law
 - 3. New York State Department of Labor Asbestos Regulations Industrial Code Rule 56.
 - 4. NYSDOH Title 10 Part 73 Asbestos Safety Program and Environmental Laboratory Approval Program.
- D. Standards: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:
 - 1. American National Standards Institute (ANSI)
 - a. Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79
 - b. Practices for Respiratory Protection Publication Z88.2-80
- E. Guidance Documents: Those that discuss asbestos abatement work or hauling and disposal of asbestos waste materials are listed below only for the Abatement Contractor's information. These documents do not describe the work and are not a part of the work of this contract.

EPA:

- 1. Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book) EPA560/5-85-024.
- 2. Asbestos Waste Management Guidance EPA 530-SW-85-007.
- F. Patents and Royalties: The Abatement Contractor shall pay all royalties and/or license fees. The Abatement Contractor shall defend all suits and claims for infringement of any patent rights and save the Owner and Consultant harmless from loss including attorney fees on account thereof.

1.06 DEFINITIONS

As used in or in connection with these specifications the following are terms and definitions.

- Abatement Procedure to control release from asbestos material. This includes removal, encapsulation and enclosure.
- **Aggressive sampling** A method of sampling in which the person collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.
- AIHA The American Industrial Hygiene Association, 475 Wolf Ledges Parkway, Akron, Ohio 44311.
- **Airlock** A system for permitting entrance and exit while restricting air movement between a containment area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.
- **Air sampling** The process of measuring the content of a known volume of air collected during a specific period of time.
- Amended water Water to which a surfactant has been added.
- **Approved asbestos safety program** A program approved by the Commissioner of Health providing training in the various disciplines that may be involved in an asbestos project.
- **Area air sampling** Any form of air sampling or monitoring where the sampling device is placed at some stationary location.
- **Asbestos** Any naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), amosite (cumingtonite-gunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.
- Asbestos contract An oral or written agreement contained in one or more documents for the performance of work on an asbestos project and includes all labor, goods and service.
- Asbestos handler An individual who installs, removes, applies, encapsulates, or encloses asbestos or asbestos material, or who disturbs friable asbestos. Only individuals certified by NYS Department of Labor shall be acceptable for work under this specification.
- **Asbestos handling certificate** A certificate issued by the Commissioner of Labor of the State of New York, to a person who has satisfactorily completed an approved asbestos safety program.
- Asbestos project Work undertaken by a contractor which involves the installation, removal, encapsulation, application or enclosure of any ACM or the disturbance of friable ACM.
- Asbestos Safety Technician (AST) Individual designated to represent the Consultant, perform third party monitoring and perform compliance monitoring at the job site during the asbestos project.

Asbestos waste material - Asbestos material or asbestos contaminated objects requiring disposal.

- **Authorized visitor** The building owner, his or her representative or any representative of a regulatory or other agency having jurisdiction over the project.
- **Background level monitoring** A method used to determine ambient airborne concentrations inside and outside of a building or structure prior to starting an abatement project.
- **Building owner** The person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Building Owner means the person in whom beneficial title is vested.
- **Clean room** An uncontaminated area or room that is a part of the personal decontamination enclosure with provisions for storage of persons' street clothes and protective equipment.
- **Cleanup** The utilization of HEPA vacuuming to control and eliminate accumulations of asbestos material and asbestos waste material.
- **Clearance air monitoring** The employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers upon conclusion of an asbestos abatement project.
- Commissioner Commissioner of the New York State Department of Labor.
- **Contractor** A company, unincorporated association, firm, partnership or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.
- **Curtained doorway** A device that consists of at least three overlapping sheets of plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and the left side. All sheets shall have weights attached to the bottom to insure that the sheets hang straight and maintain a seal over the doorway when not in use.
- **Decontamination enclosure system** A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of persons, materials, equipment, and authorized visitors.
- **Encapsulant (sealant) or encapsulating agent** A liquid material that can be applied to asbestos material and which prevents the release of asbestos from the material by creating a membrane over the surface.
- **Enclosure** The construction of airtight walls, ceilings and floors between the asbestos material and the facility environment, or around surfaces coated with asbestos materials, or any other appropriate procedure that prevents the release of asbestos materials.
- **Equipment room** A contaminated area or room that is part of the personal decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

- **Fixed object** A unit of equipment, furniture or other fixture in the work area which cannot be readily removed from the work area.
- **Friable Asbestos Material** That condition of crumbled, pulverized, powdered, crushed or exposed asbestos capable of being released into the air by hand pressure.
- Friable material containment The encapsulation or enclosure of any friable asbestos material.
- **Glovebag technique** A method for removing asbestos material from heating, ventilating, and air conditioning (HVAC) ducts, piping runs, valves, joints, elbows, and other nonplanar surfaces in a non-contained work area. The glovebag assembly is a manufactured device consisting of a glovebag constructed of at least six mil transparent plastic, two inward-projecting long sleeve gloves, which may contain an inward projecting water wand sleeve, an internal tool pouch, and an attached, labeled receptacle or portion for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and to contain all asbestos fibers released during the abatement process.
- **HEPA filter** A high efficiency particulate air filter capable of trapping and retaining 99.97 percent of particulate greater than 0.3 microns equivalent aerodynamic diameter.
- **HEPA vacuum equipment** Vacuuming equipment with a high efficiency particulate air filtration system.
- Holding area A chamber in the waste decontamination enclosure located between the washroom and an adjacent uncontaminated area.
- Homogeneous work area A site within the abatement work area that contains one type of asbestos material and where one type of abatement is used.
- **Large asbestos project** An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 160 square feet or more of asbestos or asbestos material or 260 linear feet or more of asbestos or asbestos material.
- **Minor asbestos project** An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 10 square feet or less of asbestos or asbestos material, or 25 linear feet or less of asbestos or asbestos material.
- **Movable object** A unit of equipment, furniture or fixture in the work area that can be readily removed from the work area.
- **Negative air pressure equipment** A local exhaust system equipped with HEPA filtration. The system shall be capable of creating and maintaining a negative pressure differential between the outside and the inside of the work area.

Non-asbestos material - Any material containing one percent or less asbestos by weight.

Occupied area - Any frequented portion of the work site where abatement is not taking place.

Outside air - The air outside the building or structure.

- **Personal air monitoring** A method used to determine an individual's exposure to airborne contaminants. The sample is collected outside the respirator in the person's breathing zone.
- **Plasticize** To cover floors, walls, ceilings, and other surfaces with 6 mil fire retardant plastic sheeting as herein specified.
- **Project** Any form of work performed in connection with the abatement of asbestos or alteration, renovation, modification or demolition of a building or structure that may disturb asbestos or asbestos material.
- **Removal** The stripping of any asbestos material.
- **Repair** Corrective action using required work practices to control fiber release from damaged areas.
- **Respiratory protection** Respiratory protection required of licensed asbestos workers and authorized visitors in accordance with the applicable laws.
- **Satisfactory clearance air monitoring results** For all post- abatement samples, airborne concentrations of total fibers that are less than 0.01 fibers per cubic centimeter or background levels, whichever are greater, using phase contrast microscopy (PCM).
- **Shower room** A room between the clean room and the equipment room in the personal decontamination enclosure with hot and cold running water controllable at the top and arranged for complete showering during decontamination.
- **Small asbestos project** An asbestos project involving the installation, removal, disturbances, enclosure, or encapsulation of more than 10 and less than 160 square feet of asbestos or asbestos material of more than 25 and less than 260 linear feet of asbestos or asbestos material.
- **Staging area** The area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.
- Surfactant A chemical wetting agent added to water to improve its penetration.
- Visible emissions An emission of particulate material that can be seen without the aid of instruments.
- **Washroom** A room between the work area and the holding area in the waste decontamination enclosure system, where equipment and waste containers are wet cleaned and/or HEPA vacuumed.
- **Waste decontamination enclosure system** An area, consisting of a washroom and a holding area, designated for the controlled transfer of materials and equipment.
- Wet cleaning The process of eliminating asbestos contamination from surfaces, equipment or other objects by using cloths, mops, or other cleaning tools.
- Work area Designated rooms, spaces, or areas where asbestos abatement takes place.

Work site - Premises where asbestos abatement is taking place.

Work Surface - Substrate surface from which asbestos-containing material has been removed.

1.07 UTILITIES, SERVICE AND TEMPORARY FACILITIES

- A. The Owner shall make available to the Abatement Contractor all reasonable amounts of water and electrical power at no charge.
- B. The Abatement Contractor shall provide, at his own expense, all electrical, water, and waste connections, extensions, and construction materials, supplies, etc. All connections must be approved in advance by the Owner and all work relative to the utilities must be in accordance with the applicable building codes.
- C. The Abatement Contractor shall provide scaffolding, ladders and staging, etc. as necessary to accomplish the work of this contract. The type, erection and use of all scaffolding, ladders and staging, etc. shall comply with all applicable OSHA provisions.
- D. All connections to the Owner's water system shall include reduced pressure backflow protection or double check and double gate valves. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.
- E. The Abatement Contractor shall use only heavy duty abrasion resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water to each work area and to each decontamination unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment. All water must be shut off at the end of each shift.
- F. The Abatement Contractor shall provide service to decontamination unit electrical subpanel with minimum 60 amp, 2 pole circuit breaker or fused disconnect and ground-fault circuit interrupters (GFCI), reset button and pilot light, connected to the building's main distribution panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work. This electrical subpanel shall be used for hot water heater, PAPR battery recharging and air sampling pumps.
- G. The Abatement Contractor shall provide UL rated 40-gallon electric hot water heater to supply hot water for the decontamination unit shower. Activate from 30 amp circuit breaker on the electrical subpanel located within the decontamination unit. Provide with relief valve compatible with water heater operation, relief valve down to drip pan on floor with type L copper. Wiring of the hot water heater shall be in compliance with NEMA, NEC, and UL standards.
- H. The Abatement Contractor shall provide identification warning signs at power outlets, which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 plugs into higher voltage outlets. Dry transformers shall be provided where required to provide voltages necessary for work operations. All outlets or power supplies shall be protected by ground fault circuit interrupter (GFCI) at the power source.

- I. The Abatement Contractor shall use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas of work.
- J. The Abatement Contractor shall provide general service incandescent lamps of wattage indicated or required for adequate illumination; Protect lamps with guard cages or tempered glass enclosures; Provide exterior fixtures where fixtures are exposed to moisture.
- K. The Abatement Contractor shall provide temporary heat or air conditioning as necessary to maintain comfortable working temperatures inside and immediately outside the work areas. Heating and A/C equipment shall have been tested and labeled by UL, FM or another recognized trade association related to the fuel being used. Fuel burning heaters shall not be used inside containment areas. The Contractor shall also provide a comfortable working environment for occupied areas that are impacted by the asbestos removal.
- L. The Abatement Contractor shall comply with recommendations of the NFPA standard in regard to the use and application of fire extinguishers. Locate fire extinguishers where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher in each work area, equipment room, clean room and outside the work area

1.08 REMOVAL OF FIXTURES

- A. In locations where the Abatement Contractor is directed to dispose of fixtures he shall either decontaminate the fixtures and dispose of them as non-asbestos containing materials or he shall place them in an appropriate container and dispose of them as asbestos containing material.
- B. In locations where the Abatement Contractor is directed to remove and reinstall fixtures, the fixtures shall be removed, decontaminated, labeled, protected with plastic and stored by the contractor in a location as directed by the Owner.
- C. Upon completion of the asbestos removal and upon receiving satisfactory clearance air monitoring results, all items to be replaced shall be restored to their original location and reinstalled by the Abatement Contractor.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. GENERAL REQUIREMENTS
 - 1. Materials shall be stored off the ground, away from wet or damp surfaces and under protective cover to prevent damage or contamination.
 - 2. Damaged or deteriorating materials shall not be used and shall be removed from the premises.
 - 3. Power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.
 - 4. The Abatement Contractor shall make available to authorized visitors, ladders and/or scaffolds of sufficient dimension and quantity so that all work surfaces can be easily and safely reached for inspection. Scaffold joints and ends shall be sealed with tape to prevent incursion of asbestos. Scaffolds and ladders shall comply with all applicable codes.

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B. PLASTIC BARRIERS (POLYETHYLENE)

- 1. In sizes and shapes to minimize the number of joints.
 - a. Six mil. (.006") fire-retardant for vertical protection (walls, entrances and openings).
 - b. Six mil. (.006") fire-retardant for horizontal protection (fixed equipment) and heating grilles.
 - c. Six mil. (.006") reinforced fire-retardant for floors of decon units.
- 2. Provide two (2) layers over all roof, wall and ceiling openings. Floor penetrations shall be sealed with a rigid material prior to plasticizing to prevent tripping and fall hazards. All seams within a layer shall be separated by a minimum distance of six feet and sealed airtight. All seams between layers shall be staggered.
- 3. Barrier Attachment Commercially available duct tape (fabric or paper) and spray-on adhesive. Duct tape shall be capable of sealing joints of adjacent sheets of plastic, facilitating attachment of plastic sheets to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions.

C. SIGNS

1. Danger signs shall be provided and shall conform to 29 CFR 1926.1101 and be 14" x 20". These signs shall bear the following information:

DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

D. DANGER LABELS AND TAPE

1. Labels shall be affixed to any asbestos contaminated material in accordance with the requirements of 29 CFR 1910.1200 (f) of OSHA's Hazard Communication Standard, and shall contain the following information:

DANGER CONTAINS ASBESTOS FIBERS AVOID BREATHING DUST CANCER AND LUNG DISEASE HAZARD
2. A label shall be affixed on each container of asbestos waste in accordance with the requirements of 49 CFR Parts 171 and 172, Hazardous Substances; Final Rule (U.S. Department of Transportation), and shall contain the following information:

RQ HAZARDOUS SUBSTANCE SOLID, NOS, ORM-E, NA 9188 (ASBESTOS)

3. A label shall be affixed on each container of asbestos waste in accordance with the requirements of 40 CFR Part 61.150, NESHAP; Asbestos; Final Rule (USEPA) and shall contain the name of the waste generator and the location at which the waste was generated.

NOTE: All containers marked as above (1, 2 and 3) shall be disposed of as asbestos waste.

4. Provide 3" red barrier tape printed with black lettered "DANGER ASBESTOS REMOVAL". Locate barrier tape across all corridors, entrances and access routes to asbestos work area.

E. PROTECTIVE EQUIPMENT

- 1. Respiratory Requirements
 - a. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators are the minimum allowable respiratory protection permitted to be utilized during removal operations.
 - b. Where not in violation of NIOSH, OSHA, and any other regulatory requirements, the Abatement Contractor shall provide the following minimum respiratory protection to the maximum use concentrations indicated:

MSHA/NIOSH Approved Respiratory Protection	Maximum Use Concentration
Half-Mask Air Purifying with HEPA Filters	10x PEL
Full-Facepiece Air Purifying HEPA Filters and Quantitative Fit Test	10x PEL
Powered Air Purifying (PAPR), Loose fitting Helmet or Hood, HEPA Filter	25x PEL
Powered Air Purifying (PAPR), Full Facepiece, HEPA Filter	50x PEL
Supplied Air, Continuous Flow Loose fitting Helmet or Hood	25x PEL

Supplied Air, Continuous Flow Full Facepiece, HEPA Filter	50x PEL
Full Facepiece-Supplied Air Pressure Demand, HEPA Filter	100x PEL
Full Facepiece-Supplied Air Pressure Demand, with Aux. SCBA, Pressure Demand or Continuous Flow	>100x PEL

- 2. Disposable Clothing -"Tyvek" manufactured by Dupont or approved equal.
- 3. NIOSH approved safety goggles to protect eyes.
- 4. Polyethylene bags, 6 mil. (.006") thick (use double bags).

NOTE: Workers must wear disposable coveralls and respirator masks at all times while in the work area. Contaminated coveralls or equipment must be left in work area and not worn into other parts of the building.

F. TOOLS AND EQUIPMENT

- 1. Airless Sprayer An airless sprayer, suitable for application of encapsulating material, shall be used.
- 2. Scaffolding Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations.
- 3. Transportation Equipment Transportation equipment, as required, shall be suitable for loading, temporary storage, transport and unloading of contaminated waste without exposure to persons or property. Water tight, hard wall containers shall be provided to retain and dispose of any asbestos waste material with sharp-edged components that may tear plastic bags or sheeting. The containers shall be marked with danger labels.
- 4. Surfactant Wetting Agents "Asbestos-Wet" Aquatrols Corp. of America or approved equal, and shall be non- carcinogenic.
- 5. Portable (negative air pressure) asbestos filtration system by Micro-Trap, or approved equal.
- 6. Vacuum, HEPA type equal to "Nilfisk" #GA73, or "Pullman/Holt" #75 ASA.
- 7. Amended Water Sprayer The water sprayer shall be an airless or other low-pressure sprayer for amended water application.
- **8.** Other Tools and Equipment The Abatement Contractor shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, nylon brushes, sponges, rounded edge shovels, brooms, and carts.

PART 3 – EXECUTION

3.01 PRE-ABATEMENT WORK AREA PREPARATION

- A. The work area shall be vacated by the occupants prior to work area preparation and not reoccupied until satisfactory clearance air monitoring results have been achieved.
- B. Caution signs shall be posted at all locations and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted that permit a person to read the sign and take the necessary protective measures to avoid exposure.
- C. Shut down and lock out electric power to all work areas. The Abatement Contractor shall provide temporary power and lighting and ensure safe installation of temporary power sources and equipment used where high humidity and/or water shall be sprayed in accordance with all applicable codes. All power to work areas shall be brought in from outside the area through a ground-fault interrupter at the source.
- D. Isolate the work area HVAC system.
- E. The personnel decontamination enclosure system shall be installed or constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material. The waste decontamination enclosure system shall be installed or constructed prior to commencement of abatement activities.
- F. Movable objects within the work area shall be pre-cleaned using HEPA filtered vacuum equipment an/or wet cleaning and such objects shall be removed from the work area to an uncontaminated location. If disposed of as asbestos waste material, cleaning is not required.
- G. Fixed objects and other items, which are to remain within the work area, shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning. Such objects shall be enclosed with two layers of at least six mil plastic sheeting and sealed with tape.
- H. The work area shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall be prohibited. Asbestos material shall not be disturbed during pre-cleaning.
- I. Isolation barriers that seal off all openings, including windows, corridors, doorways, ducts, and any other penetrations of the work area, shall be constructed using two layers of at least six mil fire-retardant plastic sheeting sealed with tape. Also, all seams in mechanical system components that pass through the work area shall be sealed. Doorways and corridors, which shall not be used for passage during work, shall also be sealed.
- J. Removal of mounted objects. After isolation barriers are in place, objects such as light fixtures, electrical track, alarm systems, ventilation equipment and other items not previously sealed, shall be double sealed with six mil fire-retardant plastic sheeting. Localized HEPA filtered vacuum equipment shall be used during fixture removal to reduce asbestos dispersal.
- K. Individual roof and floor drains shall be sealed watertight using two layers of 6-mil fire-retardant plastic sheeting and tape prior to plasticizing. Openings in floor shall be fully covered with plywood sheeting secured to the floor in such a way as to minimize a tripping hazard prior to plasticizing.

- L. Emergency and fire exits from the work area shall be maintained or alternate exits shall be established according to all applicable codes.
- M. Adequate toilet facilities shall be supplied by the Abatement Contractor and shall be located either in the clean area of the personnel decontamination enclosure or shall be readily accessible to the personnel decontamination enclosure.

3.02 LARGE ASBESTOS PROJECT PERSONNEL DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)

- A. The personnel decontamination enclosure shall be constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material.
 - 1. Construction and use of personnel decontamination enclosure systems shall be in accordance with ICR-56 and any Applicable or Site Specific Variances utilized on this project. Such systems may consist of existing rooms outside of the work area, if the layout is appropriate, that can be enclosed is plastic sheeting and are accessible from the work area. When this situation does not exist, enclosure systems may be constructed out of metal, wood or plastic support.
 - 2. The personnel decontamination enclosure system shall consist of a clean room, a shower room, and an equipment room, in series, separated from each other and from the work area by three airlocks.
 - 3. There shall be one shower per six full shift abatement persons calculated on the basis of the largest shift.
 - 4. The personnel decontamination enclosure system shall be fully framed, sheathed for safety and constructed to prevent unauthorized entry.
 - 5. Personnel decontamination enclosure systems constructed at the work site shall utilize at least six mil fire-retardant opaque plastic sheeting. At least two layers of six mil fire-retardant reinforced plastic sheeting shall be used for the flooring of this area.
 - 6. All prefabricated decontamination units shall be completely decontaminated and sealed prior to separation and removal from the work area. Mobile decontamination units shall remain in place until satisfactory clearance results have been attained.
 - 7. The clean room shall be sized to accommodate all authorized persons. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall also be provided. Clean clothing, replacement filters for respirators, towels and other necessary items shall be provided. The clean room shall not be used for the storage of tools, equipment or materials. It shall not be used for office space. A lockable door shall be provided to permit access to the clean room from outside the work area or enclosure. It shall be used to secure the work area and decontamination enclosure during off-shift hours.

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- 8. The shower room shall contain one or more showers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and towels shall be available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste. The shower room shall be constructed in such way that travel through the decontamination unit shall be through the shower.
- 9. The equipment room shall be used for the storage of equipment and tools after decontamination using a HEPA filtered vacuum and/or wet cleaning. A one day supply of replacement filters, in sealed containers, for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement project may also be stored here. A walk-off pan filled with water shall be located in the work area just outside the equipment room for persons to clean foot covering when leaving the work area. A drum lined with a labeled, at least six mil plastic bag is required for collection of clothing and shall be located in this room. Contaminated footwear and work clothes shall be stored in this area.

3.03 WASTE DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)

- A. General Requirements
 - 1. A waste decontamination enclosure system shall consist of the following:
 - a. A washroom/cleanup room shall be constructed with an airlock doorway to the work area and another airlock doorway to the holding area.
 - b. The holding area shall be constructed with an airlock doorway to the washroom/cleanup room and another lockable door to the outside.
 - 2. Where there is only one egress from the work area, the holding area of the waste decontamination enclosure system may branch off from the equipment decontamination room, which doubles as a waste washroom, of the personnel decontamination enclosure.
 - 3. The waste washroom shall be equipped with a drain installed to collect water and deliver it to the shower drain where it shall be filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.
 - 4. The waste washroom shall be constructed in such a way that travel through the rooms shall be through the waste washroom

3.04 WORK AREA ENTRY AND EXIT PROCEDURES

A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved:

- 1. All persons shall enter and exit the work area through the personnel decontamination enclosure system.
- 2. All persons who enter the work area or an enclosure shall sign the entry/exit log, located in the clean room, upon every entry and exit.
- 3. All persons, before entering the work area, or an enclosure shall read and be familiar with all posted regulations, personal protection requirements, including work area entry and exit procedures, and emergency procedures. The entry/exit log headings shall indicate, and the signatures shall be used to acknowledge, that these have been reviewed and understood by all persons prior to entry.
- 4. All persons shall proceed first to the clean room, remove all street clothing, store these items in clean sealable plastic bags or lockers and don coveralls, head covering, foot covering and gloves. All persons shall also don NIOSH approved respiratory protection. Clean respirators and protective clothing shall be utilized, by each person, for each separate entry into the work area. Respirators shall be inspected prior to each use and tested for proper seal using quantitative or qualitative fit checks.
- 5. Persons wearing designated personal protective equipment shall proceed from the clean room through the shower room to the equipment room, where necessary tools are collected and any additional clothing shall be donned, before entry into the work area.
- 6. Before leaving the work area, all persons shall remove gross contamination from the outside of respirators and protective clothing by brushing, wet cleaning, and/or HEPA vacuuming.
- 7. Persons shall proceed to the equipment room where all coveralls, head covering, foot covering and gloves shall be removed. Disposable clothing shall be deposited into labeled containers for disposal. Reusable contaminated clothing, footwear, head gear and gloves shall be stored in the equipment room when not being used in the work area.
- 8. Still wearing respirators, persons shall proceed to the shower area, clean the outside of the respirator and the exposed face area under running water prior to removal of the respirator, and then fully and vigorously shower and shampoo to remove residual asbestos contamination. Respirators shall be washed thoroughly with soap and water. Some types of respirators will require slight modification of these procedures. An airline respirator with HEPA filtered disconnect protection shall be disconnected in the equipment room and worn into the shower. A powered air-purifying respirator facepiece shall be disconnected from the filter/power pack assembly prior to entering the shower.
- 9. After showering and drying, all persons shall proceed to the clean room and don clean personal protective equipment if returning to the work area or street clothing if exiting the enclosure.

3.05 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION & REMOVAL PROCEDURES

A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved.

- 1. External surfaces of contaminated containers and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the work area before moving such items into the waste decontamination enclosure system airlock by persons assigned to this duty. These work area persons shall not enter the airlock.
- 2. These contaminated items shall be removed from the airlock by persons stationed in the washroom during waste removal operations. These washroom persons shall remove gross contamination from the exterior of their respirators and protective clothing by brushing, HEPA vacuuming and/or wet cleaning.
- 3. Once in the waste decontamination enclosure system, external surfaces of contaminated containers and equipment shall be cleaned a second time by wet cleaning.
- 4. The cleaned containers of asbestos material and equipment are to be dried of any excessive pooled or beaded liquid, placed in uncontaminated plastic bags or sheeting and sealed airtight.
- 5. The clean re-containerized items shall be moved into the airlock that leads to the holding area. The washroom persons shall not enter this airlock or the work area until waste removal is finished for that period.
- 6. Containers and equipment shall be moved from the airlock and into the holding area by persons dressed in clean personal protective equipment, who have entered from uncontaminated areas.
- 7. The cleaned containers of asbestos material and equipment shall be placed in water tight carts with doors or tops that shall be closed and secured. These carts shall be held in the holding area pending removal. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.
- 8. The exit from the decontamination enclosure system shall be secured to prevent unauthorized entry.
- 9. Where the waste removal enclosure is part of the personnel decontamination enclosure, waste removal shall not occur during shift changes or when otherwise occupied. Precautions shall be taken to prevent short circuiting and cycling of air outward through the shower and clean room.
- 10. Containers labeled with Asbestos hazard warnings shall not be used to dispose of non asbestos waste.

3.06 ENGINEERING CONTROLS

A. Ventilation.

- 1. The Abatement Contractor shall employ HEPA equipped vacuums or negative air pressure equipment for ventilation as required.
- 2. All negative air pressure equipment ventilation units shall be equipped with HEPA filtration. The Contractor shall provide a manufacturer's test certificate for each unit documenting the capability of trapping and retaining 99.97 percent of asbestos fibers greater than 0.3 microns equivalent aerodynamic diameter.
- 3. A power supply shall be available to satisfy the requirements of the total of all ventilating units.

- 4. On electric power failure, abatement shall stop immediately and shall not resume until power is restored and exhaust units are operating fully. On extended power failure, longer than one hour, the decontamination facilities, after the evacuation of all persons from the work area, shall be sealed airtight.
- 5. If extending the exhaust of the ventilation units 50 feet from the building would result in an exhaust location either in the road, blocking driveway access to the facility or within 50 feet of other buildings, a second unit will be run in series with the primary unit.

3.07 MAINTENANCE OF DECONTAMINATION ENCLOSURE SYSTEMS AND WORK AREA BARRIERS

A. GENERAL REQUIREMENTS

- 1. The Consultant must review and approve installation before commencement of work. Upon completion of the construction of all plastic barriers and decontamination system enclosures and prior to beginning actual abatement activities.
- 2. All plastic barriers inside the work area, in the personnel decontamination enclosure system, in the waste decontamination enclosure system and at partitions constructed to isolate the work area from occupied areas, shall be inspected by the asbestos supervisor at least twice daily. The barriers shall be inspected before the start of and following the completion of the day's abatement activities. Inspections and observations shall be documented in the project log.
- 3. Damage and defects in the barriers and/or enclosure systems shall be repaired immediately upon discovery and prior to resumption of abatement activities.
- 4. At any time during the abatement activities, if visible emissions are observed outside of the work area of if damage occurs to the barriers, work shall be stopped, repairs made and visible residue immediately cleaned up using HEPA vacuuming methods prior to the resumption of abatement activities.
- 5. The Abatement Contractor shall HEPA vacuum and/or wet clean the waste decontamination enclosure system and the personnel decontamination enclosure system at the end of each day of abatement activities.

3.08 HANDLING AND REMOVAL PROCEDURES

The Abatement Contractor may utilize existing provisions of ICR-56, Applicable Variances or a Site Specific Variance, approved by the Owner's Consultant, to permit the conduct of this work.

3.09 ABATEMENT PROCEDURES

- A. AIR SAMPLING By Owner
 - 1. Air sampling and analysis shall be conducted according to the requirements of Subpart 56-4 before the start, during and after the completion of the asbestos removal project.
 - 2. In addition to the requirements of Subpart 56-4, air monitoring shall be conducted in accordance with any approved job specific variance(s) or applicable variance utilized.

- 3. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.
- 4. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56 and 40 CFR 763.90[i].
- B. The provisions of the Applicable Variances or a Job Specific Variance shall apply only in those areas where approval has been granted by the NYS DOL and the Contractor has obtained concurrence from the Owner's Consultant. All other applicable provisions of Industrial Code Rule 56-1 through 56-12 shall be complied.
- C. A copy of the NYS DOL Job Specific or Applicable Variance, if applicable, shall be conspicuously posted at the work area(s).
- D. The Abatement Contractor shall construct a decontamination unit at the work site. The Abatement Contractor shall, as a minimum, comply with the requirements of 29 CFR 1926.1101(j); Hygiene facilities and practices for employees.

3.10 ENCAPSULATION PROCEDURES

The following procedures shall be followed to seal in non-visible residue, after obtaining satisfactory clearance air monitoring results, while conducting lockdown encapsulation on any surfaces which were the subject of removal or other remediation activities:

- A. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA contract shall be used for lockdown encapsulation.
- B. Sealants considered for use in encapsulation shall first be tested to ensure that the sealant is adequate for its intended use. A section of the work surface shall be evaluated following this initial test application of the sealant to quantitatively determine the sealant's effectiveness in terms of penetrating and locking down the asbestos fibers. The American Society of Testing and Materials (ASTM) Committee E06.21.06E on Encapsulation of Building Materials has developed a guidance document to assist in the selection of an encapsulant.
- C. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon.
- D. Encapsulants shall be applied using airless spray equipment.
 - 1. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.
- E. Encapsulation shall be utilized as a surface sealant once all asbestos containing materials have been removed in a work area. In no event shall encapsulant be applied to any surface that was the subject of removal or other remediation activities prior to obtaining satisfactory clearance air monitoring.

3.11 CLEANUP PROCEDURES

- A. The following cleanup procedures shall be required.
 - 1. Cleanup of accumulations of loose asbestos material shall be performed whenever enough loose asbestos materials have been removed to fill a single leak tight container of the type commensurate with the material properties. In no case shall cleanup be performed less than once prior to the close of each working day. Asbestos material shall be kept wet until cleaned up.
 - 2. Accumulations of dust shall be cleaned off all surfaces on a daily basis using HEPA vacuum cleaning methods.
 - 3. Decontamination enclosures shall be HEPA vacuumed at the end of each shift.
 - 4. Accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pans, squeegees or shovels. Metal shovels shall not be used to pick up or move waste.
 - 5. Excessive water accumulation or flooding in the area shall require work to stop until the water is collected and disposed of properly.
- B. The following cleanup procedures shall be required after completion of all removal activities.
 - 1. All accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pan, squeegees or shovels. Metal shovels shall not be used to pick up or move waste. HEPA vacuums shall be used to clean all surfaces after gross cleanup.
 - 2. Cleaning. All surfaces in the work area shall be HEPA vacuumed. To pick up excess liquid and wet debris, a wet purpose shop vacuum may be used and shall be decontaminated prior to removal from the work area.
 - 3. Windows, doors, HVAC system vents and all other openings shall remain sealed. Decontamination enclosure systems shall remain in place and be utilized.
 - 4. All containerized waste shall be removed from the work area and the holding area.
 - 5. All tools and equipment shall be decontaminated and removed from the work area.
 - 6. A final visual inspection and clearance air monitoring, as per the schedule for air sampling and analysis, shall be conducted.
 - 7. The isolation barriers and decontamination unit shall be removed only after satisfactory clearance air monitoring results have been achieved.

3.12 SAFETY MONITORING – CONSULTANT:

The Consultant will designate an Asbestos Safety Technician (AST) to represent the Owner during the removal program. The AST must be on the job site at all times during abatement work. Absolutely no abatement or preparation work will occur without the presence of the AST.

The AST will conduct four (4) milestone inspections.

- 1. Pre-commencement inspection shall be conducted as follows:
 - a. Notification in writing to the Consultant shall be made by the Abatement Contractor to request a pre-commencement inspection at least 48 hours in advance of the desired date of inspection. This inspection shall be requested prior to beginning preparatory work in another work area.
 - b. The AST shall ensure that:
 - i. The job site is properly prepared and that all containment measures are in place;
 - ii. The designated supervisor shall present to the inspector a valid supervisor's license issued by the New York Department of Labor;
 - iii. All workers shall present to the inspector a valid handler's license issued by the New York Department of Labor;
 - iv. Measures for the disposal of removed asbestos material are in place and shall conform to the adopted standards;
 - v. The Abatement Contractor has a list of emergency telephone numbers at the job site which shall include the monitoring firm employed by the Owner and telephone numbers for fire, police, emergency squad, local hospital and health officer.
 - c. If all is in order, the AST shall issue a written notice to proceed in the field. If the job site is not in order, then any needed corrective action must be taken before any work is to commence. Conditional approvals shall not be granted.

Progress inspection shall be conducted as follows:

- a. Primary responsibility for ensuring that the abatement work progresses in accordance with these technical specifications and regulatory requirements rests with the Abatement Contractor. The AST shall continuously be present to observe the progress of work and perform required tests.
- b. If the AST observes irregularities at any time, he shall direct such corrective action as may be necessary. If the Abatement Contractor fails to take the corrective action required, or if the Abatement Contractor or any of their employees habitually and/or excessively violate the requirements of any regulation, then the AST shall inform the Owner who shall issue a Stop Work Order to the Abatement Contractor and have the work site secured until all violations are abated.

Clean-up inspections shall be conducted as follows:

- a. Notice for clean-up inspection shall be requested by the Abatement Contractor at least 24 hours in advance of the desired date of inspection.
- b. The clean-up inspection shall be conducted prior to the removal of any isolation or critical barriers and before final air clearance monitoring.
- c. The AST shall ensure that:
 - i. The work site has been properly cleaned and is free of visible asbestos containing material and debris.
 - ii. All removed asbestos has been properly placed in a locked secure container outside of the work area.
- d. If all is in order, the AST shall issue a written notice of authorization to remove surface barriers from the work area. All isolation barriers shall remain in place until satisfactory clearance air sampling has been completed.
- 4. Clearance Visual Inspection shall be conducted after the removal of non-critical plastic sheeting. The AST shall insure that:
 - a. The work area is free of all visible asbestos or suspect asbestos debris and residue.
 - b. All waste has been properly bagged and removed from the work area.
 - c. Should clearance visual inspection identify residual debris, as determined by the AST, the Abatement Contractor is responsible for recleaning the area at his own cost and shall bear all costs of reinspection until acceptable levels are achieved.
- B. The Abatement Contractor shall be required to receive written approval before proceeding after each milestone inspection.

3.13 PERSONNEL AIR MONITORING – CONTRACTOR (29 CFR 1926.1101)

- A. Personnel air monitoring shall be provided to determine both short-term (STEL) and full shift during when abatement activities occur. Personnel sampling shall be performed in each work area in order to accurately determine the concentrations of airborne asbestos to which workers may be exposed.
- B. The Abatement Contractor shall have a qualified "Competent Person" (as specified in 29 CFR 1926 OSHA) to conduct personnel air monitoring.
- C. The laboratory performing the air sample analysis shall be certified by NYS DOH ELAP and approved by the consultant.
- D. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.

3.14 CLEARANCE AIR MONITORING

- A. Air samples will be collected in and around the work areas at the completion of abatement activities.
- B. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.
- C. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56 and 40 CFR part 763 "Asbestos-Containing Materials in Schools; Final Rule and Notice" section 763.90.

D. ***RETESTING***

Should clearance air monitoring yield fiber concentrations above the "Clearance" criteria of either 0.01 fibers per CC and/or background levels (PCM) –OR- seventy (70) structures per square millimeter (TEM/AHERA), the Abatement Contractor is responsible for re-cleaning the area at his own cost and shall bear all costs associated with the retesting of the work area(s) including monitoring labor, sampling, analysis, etc. until such levels are achieved.

3.15 RESPIRATORY PROTECTION REQUIREMENT

- A. Respiratory protection shall be worn by all individuals inside the work area from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with these specifications. The Abatement Contractor shall keep available at all times two PAPR's with new filters and charged batteries for use by authorized visitors.
- B. All respiratory protection shall be MSHA/NIOSH approved in accordance with the provisions of 30 CFR Part II. All respiratory protection shall be provided by the Abatement Contractor, and used by workers in conjunction with the written respiratory protection program.
- C. The Abatement Contractor shall provide respirators that meet the requirements of 29 CFR Parts 1910 and 1926.
 - 1. Full facepiece Type C supplied-air respirators operated in pressure demand mode equipped with an auxiliary self- contained breathing apparatus, operated in pressure demand or continuous flow, shall be worn during gross removal, demolition, renovation and/or other disturbance of ACM whenever airborne fiber concentrations inside the work area are greater than 10.0 f/cc.
 - 2. Full facepiece Type C supplied-air respirators operated in pressure demand mode with HEPA filter disconnect protection shall be work during gross removal, demolition, renovation and/or other disturbance of ACM with an amphibole content and/or whenever airborne fiber concentrations inside the work area are equal to or greater than 0.5 f/cc and less than or equal to 10.0 f/cc.
 - 3. Full facepiece powered air-purifying respirators (PAPR) equipped with HEPA filters shall be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.5 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow, with HEPA filter disconnect protection, may be substituted for a powered air-purifying respirator.

- 4. Loose fitting helmets or hoods with powered air-purifying respirators (PAPR) equipped with HEPA filters may be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.25 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow may be substituted for a powered air-purifying respirator.
- 5. Half-mask or full-face air-purifying respirators with HEPA filters shall be worn only during the preparation of the work area and final clean up procedures provided airborne fiber concentrations inside the work area are less than 0.1 f/cc.
- 6. Use of single use dust respirators is prohibited for the above respiratory protection.
- D. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.
- E. The Abatement Contractor shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every six months thereafter with the type of respirator he/she will be using.
- F. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.
- G. No facial hair, which interferes with the face-to-mask sealing surface, shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.
- H. Contact lenses shall not be worn in conjunction with respiratory protection.
- I. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by the Abatement Contractor at the Abatement Contractor's expense.
- J. Respiratory protection maintenance and decontamination procedures shall meet the following requirement:
 - 1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134(b); and
 - 2. HEPA filters for negative pressure respirators shall be changed after each shower; and
 - 3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures; and
 - 4. Airline respirators with HEPA filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator facepieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers' recommendations; and

- 5. Respirators shall be stored in a dry place and in such a manner that the facepiece and exhalation valves are not distorted; and
- 6. Organic solvents shall not be used for washing of respirators.
- K. No visitors shall be allowed to enter the contaminated area if they do not have their medical certification and training certificate. Authorized visitors shall be provided with suitable PAPR respirators and instructions on the proper use of respirators whenever entering the work area.

3.16 DISPOSAL OF WASTE

A. APPLICABLE REGULATIONS

- 1. All asbestos waste shall be stored, transported and disposed of as per, but not limited to, the following Regulations:
 - a. NYS Code Rule 56
 - b. U.S. Department of Transportation (DOT) Hazardous Substances
 Title 29, Part 171 and 172 of the code of Federal Regulations regarding waste collector registration
 - c. Regulations regarding waste collector registration Title 6, part 364 of the New York State Official Compilation of Codes, Rules and Regulations 6 NYCRR 364
 - d. USEPA NESHAPS 40 CRF 61
 - e. USEPA ASBESTOS WASTE MANAGEMENT GUIDANCE EPA/530-SW-85-007
- B. TRANSPORTER OR HAULER The Abatement Contractor shall bear full responsibility for proper characterization, transportation and disposal of all solid or liquid waste, generated during the project, in a legal manner. The Owner shall approve all transportation and disposal methods.
 - 1. The Abatement Contractor's Transporter (hauler) and disposal site shall be approved by the Owner. The Abatement Contractor shall remove within 48 hours all asbestos waste from the site after completing the clean up.
 - 2. The Transporter must possess and present to the Owner's representative a valid New York State Department of Environmental Conservation Part 364 asbestos hauler's permit to verify license plate and permit numbers. The Owner's representative will verify the authenticity of the hauler's permit with the proper authority.
 - 3. The Abatement Contractor shall give 24 hour notification prior to removing any waste from the site. All waste shall be removed from site only during normal working hours. No waste may be taken from the site without authorization from the Owner's representative.
 - 4. The Abatement Contractor shall have the Transporter give the date and time of arrival at the disposal site.

- 5. The Transporter with the Abatement Contractor and Owner's consultant shall inspect all material in the transport container prior to taking possession and signing the Waste Manifest. The Transporter shall not have any off site transfers or be combined with any other off-site asbestos material.
- 6. The Transporter must travel directly to the disposal site with no unauthorized stops.
- C. WASTE STORAGE CONTAINER
 - 1. During loading and on site storage, the asbestos waste container shall be labeled with EPA Danger signage:

DANGER CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD

- 2. The NYS DEC Hauler's Permit number shall be on both sides and back of the container.
- 3. The Container will not be permitted to leave the site without the proper signage.
- 4. A copy of the completed waste manifest shall be forwarded directly to the Owner's Consultant by the disposal facility.
- 5. Packaging of Non-friable Asbestos. Use of an open top container shall require written request, by the Contractor, and written approval by the Owners Representative, and be performed in compliance with all applicable regulations.
 - a) A chute, if used, shall be air/dust tight along its lateral perimeter and at the terminal connection to the dumpster at ground level (solid wall and top container). The upper end of the chute shall be furnished with a hinged lid, to be closed when the chute is not being used.
 - b) The container shall be lined with a minimum of two (2) layers of 6 mil. Fire-retardant polyethylene draped loosely over the sides so as to facilitate being wrapped over the top of the load and sealed prior to transport from the site.
 - c) Prior to transport from the work site the Dumpster will be disconnected from the chute and sealed air/dust tight utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.
- 6. Packaging Friable Asbestos.
 - a) The container shall be a solid wall, hard top and lockable container.
 - b) The container shall be locked upon arrival at the site to restrict access. Security shall be provided at the entrance to the container during the loading process and immediately locked upon completion.

- c) The interior walls, floor and ceiling shall be lined with two (2) layers of 6 mil. Fire-retardant polyethylene.
- d) The waste shall be loaded in such a manner as to protect the integrity of the individual waste packages.
- e) Prior to transport from the work site the interior of the Dumpster will sealed air/dust tight utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.

D. WASTE DISPOSAL MANIFEST

- 1. The Asbestos Waste Manifest shall be equivalent to the "Waste Shipment Record" included in 40 CFR 61. A copy of the Contractor's manifest shall be reviewed by the Owner's Consultant and shall be the only manifest used.
- 2. The Manifest shall be verified by the Owner's Consultant indicating that all the information and amounts are accurate and the proper signatures are in place.
- 3. The Manifest shall have the signatures of the Abatement Contractor and the Transporter prior to any waste being removed from the site.
- 4. The Manifest shall be signed by the Disposal Facility owner or operator to certify receipt of asbestos containing materials covered by the manifest.
- 5. A copy of the completed manifest shall be provided by the Abatement Contractor to the Owner's Consultant and remain on site for inspection.
- 6. Abatement Contractor shall maintain a waste disposal log which indicates load number, date and time left site, container size, type of waste, quantity of waste, name of hauler, NYS DES permit number, trailer and tractor license number, and date manifest was returned to Consultant.
- 7. The Disposal Facility owner or operator shall return a signed copy of the Waste Manifest directly to:

Newburgh ECSD 124 Grand Street Newburgh, New York 12550 ATTN: Anibal Velez

- 8. Copies of the completed Waste Manifest are to be sent by the disposal facility to the Hauler and Abatement Contractor.
- 9. Submit signed dump tickets and manifests with final payment request.
- 10. Final payment request will not be honored without signed dump ticket or manifests accounting for all asbestos waste removed from the site.

E. VIOLATIONS OF SPECIFICATIONS

1. Violations of the safety, hygiene, environmental, procedures herein, any applicable federal, state of local requirement s or failure to cooperate with the Owner's representative shall be grounds for dismissal and/or termination of this contract.

F. VIOLATIONS OF NO SMOKING POLICY

1. The Federal Pro Children Act of 1994 prohibits School District Officials from smoking in any buildings or on the grounds that is property of the School District. The District shall be considered smoke free. The School District strongly enforces its' No Smoking Policy. It is the Contractor's responsibility to inform all workers of this policy. Any worker(s) involved with this project that are found smoking or using tobacco products will be informed that they are in violation of the Federal and State Law and School Board Policy and will be removed from site.

LOCATION OF WORK – BASE BID

(Please see attached Drawings for approximate locations)

Vales Gate STEAM Academy

- Asbestos Abatement Contractor responsible for complete and total removal and disposal of approximately 1,800 SF of 12"x12" Non-Friable Asbestos-containing Floor Tile and Mastic, Located in the Entrance Hallway to the MODS and Room 166 – Attendance, OT/PT Office.
- Asbestos Abatement Contractor responsible for complete and total removal and disposal of approximately 20 SF (10 SF per location) of 9x9 Non-Friable Asbestos-containing Floor Tile and Mastic, Located by the rear stairs to the stage.
- Asbestos Abatement Contractor is responsible to seal the entrance to the pipe tunnel in the boiler room with a hard barrier and warning signs. The GC will be responsible to identify all entrances to the tunnel(s) with the owner's representative. All entrances will required to be sealed with a hard barrier and warning signs.
- Note To All Contractors: All the Mudded joints are positive for ACM there is also TSI pipe insulation located in the building. Any disturbance of this material is prohibited and will be the responsibility of the persons responsible for the disturbance.
- Asbestos Abatement Contractor is responsible for providing all demolition activities required to access materials, as well as for providing all labor, equipment, and materials necessary.

END OF WORK LOCATIONS

3.18 GENERAL

- A. The Abatement Contractor will be responsible for repairing all building components damaged during abatement including, but not limited to: ceiling tiles, ceiling finishes, wall finishes, floor finishes, etc.
- B. The Abatement Contractor shall be responsible for all demolition required to access materials identified in scope of work and on associated drawings.
- C. Concealed conditions that are exposed and may require additional work shall be brought to the attention of the Owner immediately. The Abatement Contractor shall not abate these areas without a written notice to proceed. Additional asbestos abatement performed prior to the order to proceed will not be acknowledged.
- D. The Abatement Contractor shall remove asbestos-containing floor covering to the building substrate beneath; in areas indicted. Subsequent to final air clearance the substrate shall be washed with a neutralizing agent to prepare the substrate to accept new floor covering and eliminate residual odors.
- E. Power tools used to drill, cut into or otherwise disturb asbestos containing material shall be equipped with HEPA filtered local exhaust ventilation.
- F. The Abatement Contractor shall provide access to GFCI electrical power, required to perform the area air monitoring for this project, within and immediately adjacent to each work area.
- G. Unwrapped or unbagged ACM shall be immediately placed in an impermeable waste bag or wrapped in plastic sheeting.
- H. Coordinate all removal operations with the Owner.

RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET

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Asbestos Employee Medical Examination Statement Certificate of Worker Release Asbestos Employee Training Statement CERTIFICATE OF WORKERS'S ACKNOWLEDGEMENT

PROJECT NAME: Phase 5: 2019 Capital Improvements Project

at 400 old Forge Road, New Windsor, NY 12553 – Vails Gate STEAM Academy

ABATEMENT CONTRACTOR'S NAME:____

WORKING WITH ASBESTOS INVOLVES POTENTIAL EXPOSURE TO AIRBORNE ASBESTOS FIBERS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER AND RESPIRATORY DISEASES. SMOKING CIGARETTES AND INHALATION OF ASBESTOS FIBERS INCREASES THE RISK THAT YOU WILL DEVELOP LUNG CANCER ABOVE THAT OF THE NON-SMOKING PUBLIC.

The Contract for this project requires the Abatement Contracting Company to: 1) supply proper respiratory protection devices, and training on their use, to their employees; 2) provide training on safe work practices, and on use of the equipment used on the project, to their employees; and, 3) provide annual medical examinations to their employees meeting the requirements of 29 CFR 1926.1101. The Abatement Contracting Company's signature on this certificate, documents that these contractual obligations are fulfilled, and that you understand the information presented to you.

***********DO NOT SIGN THIS FORM UNLESS YOU FULLY UNDERSTAND THIS INFORMATION**********

<u>RESPIRATORY PROTECTION:</u> I have been trained in the proper use and limitations of the type of respiratory protection devices to be used on this project. I have reviewed the written respiratory protection program manual and a copy is available for my use. Respiratory protection equipment has been proved, by the Contractor, at no cost to me.

<u>TRAINING COURSE:</u> I have been trained in the risks and dangers associated with handling asbestos, breathing asbestos dust, proper work procedures, personal protection and engineering controls. I have satisfactorily completed and Asbestos Safety Training Program for New York State and have been issued a New York State Department of Health Certificate of Asbestos Safety Training.

<u>MEDICAL EXAMINATION</u>: I have satisfactorily completed a medical examination within the last 12 months that meets the OSHA requirement for an asbestos worker and included at least 1) medical history 2) pulmonary function 3) medical examination 4) approval to wear respiratory protection devises and may have included an evaluation of a chest x-ray.

Signature:	Printed Name:	Date:
Witness Signature:	Printed Name:	Date:

RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET

RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET

ESTIMATE OF ACM QUANTITIES

PROJECT NAME: Phase 5: 2019 Capital Improvements Project

at 400 old Forge Road, New Windsor, NY 12553 – Vails Gate STEAM Academy

EACH ABATEMENT CONTRACTOR SHALL READ AND ACKNOWLEDGE THE FOLLOWING NOTICE. A SIGNED AND DATED COPY OF THIS ACKNOWLEDGMENT SHALL BE SUBMITTED WITH THE ABATEMENT CONTRACTOR'S BID FOR THIS PROJECT. FAILURE TO DO SO MAY, AT THE SOLE DISCRETION OF THE OWNER, RESULT IN THE BID BEING CONSIDERED NON-RESPONSIVE AND RESULT IN DISQUALIFICATION OF THE ABATEMENT CONTRACTOR'S **BID ON THIS PROJECT.**

*** NOTICE ***

The linear and square footages listed within this specification are approximates. Abatement Contractor is required to visit the work locations prior to bid submittal in order to take actual field measurements within each listed location. The Abatement Contractor shall base their bid on actual quantities determined, by them, at the site walkthrough. Estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project.

Acknowledgment: I have read and understand the above NOTICE regarding removal quantity estimates and understand that estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project. The Abatement Contractor's signatory represents to the Owner that he/she has the authority of the entity he/she represents to sign this agreement on its behalf.

Company Name: ____

Type or Print

BY:

Signature

Title

Date

Print Name: _____

RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET

ASSOCIATED ASBESTOS REMOVAL LOCATION DRAWINGS

Newburgh ECSD: Phase 5: 2019 Capital Improvements Project at 400 old Forge Road, New Windsor, NY 12553 – Vails Gate STEAM Academy

Phase 5: 2019 Capital Improvements Project

DRAWING #MNT-HZ-100 – Entrance Hallway to the MODS

END OF SECTION 028213

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Concrete Forming and Accessories

031000 - 1

SECTION 031000 CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Formwork for cast-in-place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

1.02 RELATED REQUIREMENTS

- A. Section 032000 Concrete Reinforcing.
- B. Section 033000 Cast-in-Place Concrete.
- C. Section 042000 Unit Masonry: Reinforcement for masonry.
- D. Section 051200 Structural Steel Framing: Placement of embedded steel anchors and plates in cast-in-place concrete.

1.03 REFERENCE STANDARDS

- A. ACI 301 Specifications for Structural Concrete 2016.
- B. ACI 318 Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
- C. ACI 347R Guide to Formwork for Concrete 2014, with Errata (2017).

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on void form materials and installation requirements.
- C. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301, ACI 318, ACI 347 and Highways standards of the State of North Carolina.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver prefabricated forms and installation instructions in manufacturer's packaging.
- B. Store prefabricated forms off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish castin-place concrete work.
- B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.
- C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.
- D. Comply with relevant portions of ACI 347R, ACI 301, and ACI 318.

2.02 WOOD FORM MATERIALS

- A. Form Materials: At the discretion of the Contractor.
- B. Lumber Forms:
 - 1. Application: Use for edge forms and unexposed finish concrete.
 - 2. Boards: 6 inches or 8 inches in width, shiplapped or tongue and groove, "Standard" Grade Douglas Fir, conforming to WCLIB Standard Grading Rules for West Coast

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Lumber. Surface boards on four sides.

- C. Plywood Forms:
 - 1. Application: Use for exposed finish concrete.
 - 2. Forms: Conform to PS 1; full size 4 x 8 feet panels; each panel labeled with grade trademark of APA/EWA.
 - 3. Plywood for Surfaces to receive Membrane Waterproofing: Minimum of 5/8 inch thick; APA/EWA "B-B Plyform Strutural I Exterior" grade
 - 4. Plywood whee "Smooth Finish" is required, as indicated on Drawings: APA/EWA "HD Overlay Plyform Structural I Exterior" grade, minimum of 3/4 inch thick.

2.03 REMOVABLE PREFABRICATED FORMS

- A. Preformed Steel Forms: Minimum 16 gauge, 0.0598 inch thick, matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- B. Void Forms: Moisture resistant treated paper faces, biodegradable, structurally sufficient to support weight of wet concrete mix until initial set; 2 inches thick. Provide [____] manufactured by [____].

2.04 FORMWORK ACCESSORIES

- A. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
- B. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.
- C. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 051200.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 ERECTION - FORMWORK

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.
- D. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect before proceeding.

3.03 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.04 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items that will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.

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D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

3.05 ERECTION TOLERANCES

- A. Secion 01 40 00 Quality Requirements: Tolerances.
- B. Construct formwork to maintain tolerances required by ACI 301 and ACI 318.

3.06 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 Quality Requirements.
- B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.
- C. Notify Architect/Engineer after placement of reinforcing steel in forms, but prior to placing conrete.
- D. Schedule concrete placement to permit formwork inspection before placing concrete.

3.07 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

END OF SECTION

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PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Reinforcing steel for cast-in-place concrete.
- B. Welded wire fabric.
- C. Supports and accessories for steel reinforcement.

1.02 RELATED REQUIREMENTS

- A. Section 031000 Concrete Forming and Accessories.
- B. Section 033000 Cast-in-Place Concrete.
- C. Section 260526 Grounding and Bonding for Electrical Systems: Grounding connection to concrete reinforcement.

1.03 REFERENCE STANDARDS

- A. ACI 301 Specifications for Structural Concrete 2016.
- B. ACI 318 Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
- C. ACI SP-66 ACI Detailing Manual 2004.
- D. ASTM A615/A615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.
- E. ASTM A1064/A1064M Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2018a.
- F. AWS B2.1/B2.1M Specification for Welding Procedure and Performance Qualification 2014 (Amended 2015).
- G. AWS D1.4/D1.4M Structural Welding Code Reinforcing Steel 2018.
- H. CRSI (DA4) Manual of Standard Practice 2009.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
- C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
- D. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

1.05 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301.
 - 1. Maintain one copy of each document on project site.

PART 2 PRODUCTS

2.01 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).1. Unfinished.
- B. Stirrup Steel: ASTM A1064/A1064M steel wire, unfinished.
- C. Steel Welded Wire Reinforcement (WWR): Galvanized, deformed type; ASTM A1064/A1064M.
 - 1. Form: Flat Sheets.
 - 2. WWR Style: 4 x 8-W6 x W10.
- D. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.

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2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.02 FABRICATION

- A. Fabricate concrete reinforcing in accordance with CRSI (DA4) Manual of Standard Practice.
- B. Welding of reinforcement is permitted only with the specific approval of Architect. Perform welding in accordance with AWS D1.4/D1.4M.
 - 1. Galvanized Reinforcement: Clean surfaces, weld and re-protect welded joint in accordance with CRSI (DA4).
- C. Locate reinforcing splices not indicated on drawings at point of minimum stress.1. Review locations of splices with Architect.

PART 3 EXECUTION

3.01 PLACEMENT

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Space reinforcement bars with minimum clear spacing in accordance with ACI 318, but not less than 1 inch.
 - 1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.
- E. Maintain concrete cover around reinforcement in accordance wiuth ACI 318.
- F. Splice reinforcing where indicated on Drawings in accordance with splicing device manufacturer's instructions.
- G. Bond and ground all reinforcement to requirements of Section 260526.

3.02 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 014000 - Quality Requirements, will inspect installed reinforcement for compliance with contract documents before concrete placement.

END OF SECTION

SECTION 033000 CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Concrete building frame members.
- C. Concrete for composite floor construction.
- D. Floors and slabs on grade.
- E. Concrete foundation walls.
- F. Concrete reinforcement.
- G. Joint devices associated with concrete work.
- H. Miscellaneous concrete elements, including equipment pads.
- I. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

- A. ACI 117 Specifications for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
- B. ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).
- C. ACI 301 Specifications for Structural Concrete 2016.
- D. ACI 302.1R Guide to Concrete Floor and Slab Construction 2015.
- E. ACI 304R Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).
- F. ACI 305R Guide to Hot Weather Concreting 2010.
- G. ACI 306R Guide to Cold Weather Concreting 2016.
- H. ACI 308R Guide to External Curing of Concrete 2016.
- I. ACI 318 Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
- J. ACI 347R Guide to Formwork for Concrete 2014, with Errata (2017).
- K. ASTM A615/A615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.
- L. ASTM C33/C33M Standard Specification for Concrete Aggregates 2018.
- M. ASTM C39/C39M Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
- N. ASTM C94/C94M Standard Specification for Ready-Mixed Concrete 2021a.
- O. ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens) 2021.
- P. ASTM C143/C143M Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
- Q. ASTM C171 Standard Specification for Sheet Materials for Curing Concrete 2016.
- R. ASTM C173/C173M Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2016.
- S. ASTM C260/C260M Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).

- T. ASTM C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete 2019.
- U. ASTM C330/C330M Standard Specification for Lightweight Aggregates for Structural Concrete 2017a.
- V. ASTM C494/C494M Standard Specification for Chemical Admixtures for Concrete 2019.
- W. ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2019.
- X. ASTM C827/C827M Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures 2016.
- Y. ASTM C881/C881M Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete 2020a.
- Z. ASTM C1059/C1059M Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete 2021.
- AA. ASTM C1107/C1107M Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink) 2017.
- BB. ASTM C1240 Standard Specification for Silica Fume Used in Cementitious Mixtures 2020.
- CC. ASTM C1315 Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete 2019.
- DD. ASTM C1602/C1602M Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2012.
- EE. ASTM D1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) 2018.
- FF. ASTM E1643 Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs 2018a.
- GG. ASTM E1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs 2017.
- HH. COE CRD-C 572 Corps of Engineers Specifications for Polyvinylchloride Waterstop 1974.
- II. ICRI 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair 2013.
- JJ. NSF 61 Drinking Water System Components Health Effects 2020.
- KK. NSF 372 Drinking Water System Components Lead Content 2020.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- C. Mix Design: Submit proposed concrete mix design.
 - 1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 Concrete Mixtures.
 - 2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 Concrete Quality, Mixing and Placing.
- D. Samples: Submit samples of underslab vapor retarder to be used.
- E. Test Reports: Submit report for each test or series of tests specified.

1.05 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 1. Form Facing for Exposed Finish Concrete: Steel.
 - 2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
 - 3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
 - 4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT MATERIALS

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
- B. Steel Welded Wire Reinforcement (WWR): Plain type, ASTM A1064/A1064M.
 - 1. Form: Flat Sheets.
- C. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
 - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type I Normal Portland type.1. Acquire cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
 - 1. Acquire aggregates for entire project from same source.
- C. Lightweight Aggregate: ASTM C330/C330M.
- D. Fly Ash: ASTM C618, Class C or F.
- E. Calcined Pozzolan: ASTM C618, Class N.
- F. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
- G. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
- E. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
- F. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
- G. Accelerating Admixture: ASTM C494/C494M Type C.
- H. Waterproofing Admixture: Admixture formulated to reduce permeability to liquid water, with no adverse effect on concrete properties.
 - 1. Admixture Composition: Crystalline, functioning by growth of crystals in capillary pores.
 - 2. Manufacturers:
 - a. Aquafin, Inc; [____]: www.aquafin.net/#sle.
 - b. Euclid Chemical Company; Eucon Vandex AM-10: www.euclidchemical.com/#sle.
 - c. Kryton International, Inc; Krystol Internal Membrane (KIM): www.kryton.com/#sle.
 - d. Xypex Chemical Corporation; XYPEX Admix C-500: www.xypex.com/#sle.

2.05 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder: Sheet material complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
 - 1. Installation: Comply with ASTM E1643.
 - 2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
 - 3. Manufacturers:
 - a. Fortifiber Building Systems Group ; Moistop Ultra 10: www.fortifiber.com/#sle.
 - b. ISI Building Products; Viper VaporCheck II 10-mil (Class A): www.isibp.com/#sle.
 - c. Stego Industries, LLC; 10-mil: www.stegoindustries.com/#sle.
 - d. W. R. Meadows, Inc; PERMINATOR Class A 10 mils (0.25 mm): www.wrmeadows.com/#sle.
- B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
 - 1. Grout: Comply with ASTM C1107/C1107M.
 - 2. Height Change, Plastic State; when tested in accordance with ASTM C827/C827M:
 - a. Maximum: Plus 4 percent.
 - b. Minimum: Plus 1 percent.
 - 3. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 7,000 pounds per square inch.

2.06 BONDING AND JOINTING PRODUCTS

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
- B. Epoxy Bonding System:
- C. Waterstops: PVC, complying with COE CRD-C 572.
- D. Waterstops: Bentonite and butyl rubber, complying with NSF 61 and NSF 372.1. Manufacturers:
 - a. CETCO, a division of Minerals Technologies Inc; WATERSTOP RX: www.mineralstech.com/#sle.
- E. Reglets: Formed steel sheet, galvanized, with temporary filler to prevent concrete intrusion during placement.
- F. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
 1. Material: ASTM D1751, cellulose fiber.
- 2.07 CURING MATERIALS
 - A. Curing and Sealing Compound, Moisture Emission-Reducing, Penetrating: Liquid for application to newly-placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission, moisture vapor emission, and alkalinity.
 - 1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.
 - 2. Compressive Strength of Treated Concrete: Equal to or greater than strength after 28day water cure when tested according to ASTM C39/C39M.
 - 3. Comply with ASTM C309 and ASTM C1315 Type I Class A.
 - B. Moisture-Retaining Sheet: ASTM C171.

1. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch.

2.08 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.

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- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. Normal Weight Concrete: Footings and Buried Foundations.
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,500 pounds per square inch.
 - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 - 3. Cement Content: Minimum 475 pound sper cubic foot.
 - 4. Water-Cement Ratio: Maximum 50 percent by weight.
 - 5. Maximum Slump: 3 1/2 inches. (+/- 1")
 - 6. Maximum Aggregate Size: 1 inch.
- E. Normal Weight Concrete: Slab-on -Grade (interior).
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,500 pounds per square inch.
 - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 - 3. Cement Content: Minimum 540 pounds per .
 - 4. Water-Cement Ratio: Maximum 45 percent by weight.
 - 5. Maximum Slump: 3 1/2 inches. (+/-1")
 - 6. Maximum Aggregate Size: 3/4 inch.
- F. Normal Weight Concrete: Exterior Slabs and Retaining Walls.
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 5,000 pounds per square inch.
 - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 - 3. Cement Content: Minimum 590 pounds per cubic foot.
 - 4. Water-Cement Ratio: Maximum 45 percent by weight.
 - 5. Total Air Content: 6 percent, (+/-1") determined in accordance with ASTM C173/C173M.
 - 6. Maximum Slump: 3 1/2 inches.
 - 7. Maximum Aggregate Size: 1 1/2 inches.
- G. Structural Light Weight Concrete: Interior slabs on deck.
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,500 pounds per square inch..
 - 2. Cement Content: Minimum 660 pounds per cubic foot.
 - 3. Total Air Content: 4 to 8 percent, determined in accordance with ASTM C173/C173M.
 - 4. Maximum Slump: 2 1/2 inches.
 - 5. Maximum Aggregate Size: 5/8 inch.
 - 6. Maximum dry unit weight: 117 pounds per cubic foot.

2.09 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.
- B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust before applying release agent. Coat contact surfaces of forms with form-release agent before placing reinforcement.
- C. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- D. Construct forms tight enough to prevent loss of concrete mortar.

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- E. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- F. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
 - 2. Class C, 1/2 inch for rough-formed finished surfaces.
- G. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- H. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- I. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- J. Chamfer exterior corners and edges of permanently exposed concrete.
- K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- L. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- M. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- N. Prepare existing concrete surfaces to be repaired according to ICRI 310.2R.
- O. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
 - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
 - 2. Use latex bonding agent only for non-load-bearing applications.
- P. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

3.03 INSTALLING REINFORCEMENT, ANCHOR RODS, AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
 - 2. Allow six hours between completion of reinforcement installation and placement of concrete for special inspection.
- B. Bend steel reinforcement in accordance with ACI 318.
 - 1. Do not heat steel reinforcement for bending. Bend or straighten bars cold.
 - 2. Do not bend partially embedded steel reinforcement, except as approved.
- C. Clean reinforcement of dirt, grease, scale, loose rust, oil, paint and other foreign matter prior to installation.
- D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

- E. Splicing of Reinforcement: Conform to ACI 318 Chapter 12 for wired lap splices and embedment lengths.
- F. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- G. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
- H. Maintain required concrete cover dimensions indicated. Coordinate placement of conduit and inserts with reinforcement. Protect installed reinforcement from damage or displacement prior to and during concrete placement.
- I. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.
- J. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303. Misplaced or damaged anchor rods shall be subject to re-engineering fees.
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchors in concrete structures as indicated.

3.04 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.05 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
 - 1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.06 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R. Verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed and corrections made.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or

planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

- 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
- Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - a. Supplement mechanical consolidation by hand, spading, rodding, or tamping.
- 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Place concrete for floor slabs in accordance with ACI 302.1R. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- E. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- F. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- G. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- H. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.07 SLAB JOINTING

- A. Locate joints as indicated on drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
- D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

3.08 FLOOR FLATNESS AND LEVELNESS TOLERANCES

- A. Maximum Variation of Surface Flatness:
 - 1. Exposed Concrete Floors: 1/4 inch in 10 feet.
 - 2. Under Seamless Resilient Flooring: 1/4 inch in 10 feet.
 - 3. Under Carpeting: 1/4 inch in 10 feet.
- B. Correct the slab surface if tolerances are less than specified.
- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.09 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
 - 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- C. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
 - 1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
 - 2. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.10 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Surfaces Not in Contact with Forms:
 - 1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
 - 2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water-fog spray or saturated burlap.
 - a. Spraying: Spray water over floor slab areas and maintain wet.
 - b. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
 - 3. Final Curing: Begin after initial curing but before surface is dry.
 - a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.11 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 Quality Requirements.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cubic yards or less of each class of concrete placed.
- E. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- F. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.12 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

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3.13 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

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SECTION 035416 HYDRAULIC CEMENT UNDERLAYMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract, and other related construction documents such as Division 01 specifications apply to this Section.

1.02 SUMMARY

- A. This Section includes a self-leveling underlayment that consists of a blend of Portland cement and other hydraulic cements and polymers that is used to level and smooth interior concrete, terrazzo, well-bonded ceramic & quarry tile, epoxy coating systems, wood, metal and properly prepared, non-water-soluble adhesive residue on concrete prior to the installation of finish flooring on all grade levels.
 - 1. ARDEX K 15® Premium Self-Leveling Underlayment
 - 2. ARDEX P 51[™] Primer
 - 3. ARDEX P 82[™] Ultra Prime
 - 4. ARDEX EP 2000[™] Substrate Preparation Epoxy Primer
 - 5. ARDEX E 25[™] Resilient Emulsion

1.03 REFERENCE STANDARDS

- A. ASTM C109M, Compressive Strength Air-Cure Only
- B. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars
- C. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes
- D. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements for submittal procedures.
- B. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Safety Data Sheets.
- C. Qualification Data: For Installer

1.05 QUALITY ASSURANCE

- A. Installation of the product must be completed by a factory-trained applicator.
- B. Product must have a hydraulic cement-based inorganic binder content as the primary binder which includes portland cement per ASTM C150: Standard Specification for Portland Cement and other specialty hydraulic cements. Gypsum-based products are not acceptable.
- C. Manufacturer Experience: Provide products of this section by companies which have successfully specialized in production of this type of work for not less than 10 years. Contact Manufacturer Representative prior to installation.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50° and 85°F (10° and 29°C) and protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

1.07 PROJECT CONDITIONS

A. Do not install material below 50°F (10°C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section. Install quickly if the substrate is warm and follow warm weather instructions.

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PART 2 PRODUCTS

2.01 HYDRAULIC CEMENT UNDERLAYMENT

- A. Hydraulic Cement-Based Self-Leveling Underlayment: Polymer-modified, self-leveling, hydraulic cement product that can be applied in minimum uniform thickness of 1/4 inch (6 mm) and that can be feathered at edges to match adjacent floor elevations.
 - Basis-of-Design Product: Subject to compliance with requirements, provide ARDEX K 15®; Manufactured by ARDEX Engineered Cements or a comparable product by one of the following:
 - a.
 - b. Laticrete International, Inc.
 - c. MAPEI Corporation.
 - d. Uzin Utz North America, Inc.
 - 2. Primer:
 - a. Standard Absorbent Concrete: ARDEX P 51[™] Primer or equal.
 - b. Extremely Absorbent Concrete: May require two applications of ARDEX P 51[™] to minimize the potential for pinholes forming in the ARDEX K 15 or equal.
 - c. Wood: ARDEX P 82[™] Ultra Prime or equal.
 - d. Metal: ARDEX EP 2000[™] Substrate Preparation Epoxy Primer or equal
 - e. Other Non-Porous Substrates (burnished concrete, terrazzo, wellbonded ceramic, quarry and porcelain tiles, epoxy coating systems and non-water soluble adhesive residue on concrete and concrete treated with silicate compounds): ARDEX P 82[™] Ultra Prime or equal.
 - f. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F+/-3°F (23° C+/-3°C) and 50% +/-5% relative humidity:
 - 1) Application: Barrel Mix or Pump
 - 2) Flow Time: 10 minutes
 - 3) Walkable: 2 to 3 hours
 - 4) Compressive Strength: 5,500 psi (385 kg/cm2) at 28 days, ASTM C109M
 - 5) Flexural Strength: 1,200 psi (84 kg/cm2) at 28 days, ASTM C348
 - 6) VOC: 0

2.02 WATER: WATER SHALL BE CLEAN, POTABLE, AND SUFFICIENTLY COOL (NOT WARMER THAN 70°F).

PART 3 EXECUTION

3.01 PREPARATION

- A. General: Prepare substrate in accordance with manufacturer's instructions.
 - 1. Concrete:
 - a. Prior to proceeding please refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before priming. Mechanically clean if necessary using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.
 - b. Substrates shall be inspected in accordance with ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the underlayment or the finished floor covering. For areas where moisture vapor emissions exceed the required limits refer to Section 09 05 61.13, Moisture Vapor Emission Control and install the appropriate ARDEX Moisture Control System (or equal).
- B. Crack and Joint Preparation:
 - 1. Moving Joints and Moving Cracks honor all expansion, isolation joints and moving cracks up through the underlayment. A flexible sealing compound such as ARDEX ARDISEAL[™] Rapid Plus Semi-Rigid Joint Sealant (may be installed.
 - 2. Saw Cuts, Dormant Control Joints and Dormant Cracks fill all dormant control joints and dormant cracks with ARDEX ARDIFIX[™] Low Viscosity Rigid Polyurethane Crack & Joint Repair or ARDEX FEATHER FINISH® Self-Drying, Cement-Based Finish

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Underlayment (or equal) as recommended by the manufacturer.

- C. Wooden subfloors: The wood subfloor either must be solid hardwood flooring; a minimum of ³⁄₄" (19 mm) tongue-and-groove, APA-rated Type 1, exterior exposure plywood; or an approved OSB equivalent. The wood subfloor must be constructed according to prevailing building codes and must be solid and securely fixed to provide a rigid base free of undue flex. Any boards exhibiting movement must be refastened to create a sound, solid subfloor. The wood must be clean and free of all foreign matter. If necessary, sand down to bare wood. Vacuum to remove all dust. Do not use solvent, strippers or cleaners. Open joints should be filled with ARDEX FEATHER FINISH® (or equal). It is the responsibility of the installation contractor to ensure that the wood subfloor is thoroughly clean and properly anchored prior to the installation of any ARDEX material.
- D. Metal subfloors:
 - 1. Metal subfloors must be rigid, well supported, properly anchored and free of undue flex and vibration. They must also be clean and free of all rust, corrosion and foreign matter.
 - 2. Non-lead metal substrates must be mechanically cleaned and profiled to create a bonding surface. Please note that care must be taken when mechanically preparing thin metal foils so that the metal foil is not compromised. Use an #80 or #100 grit sanding screen to mechanically profile the metal surface. A hand or floor sander may be used. After sanding, thoroughly deep vacuum to remove all loose material, and then wipe the metal using a clean, white cloth dampened with 91% isopropyl alcohol. Repeat wiping using a new cloth on each pass until the degree of discoloration on the cloth remains consistent on subsequent passes (typically, approx. 5 7 passes). Lightly shot blasting also is suitable. From this point until the metal has been primed, disposable shoe covers should be worn by anyone traversing the surface of the prepared metal. Allow 15 20 minutes for residual alcohol to evaporate before proceeding. Contact the Technical Service Department for guidelines on preparing lead substrates.
- E. Adhesive residues on concrete must first be tested to make certain they are not watersoluble. Water-soluble adhesives must be completely mechanically removed down to clean concrete. Non-water-soluble adhesives should be prepared to a thin, well-bonded residue using the wetscraping technique as recommended by the Resilient Floor Covering Institute (www.rfci.com). The prepared residue should appear as nothing more than a transparent stain on the concrete after scraping.
- F. Non-porous subfloors such as ceramic, porcelain and quarry tile, burnished concrete, epoxy coating systems as well as terrazzo should be clean and free of all waxes, sealers, dust, dirt, debris and any other contaminant that may act as a bond breaker. If necessary, clean by mechanical methods such as shot blasting.

3.02 APPLICATION

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.
- C. Priming:
 - 1. Note: When using ARDEX P 51, It is critical to ensure that the ARDEX P 51 is dry prior to proceeding with the next installation step. To determine if the ARDEX P 51 is dry after a minimum of 30 minutes (max. 24 hours), pour water onto the surface of the primer in several areas and rub it with your finger. If the water remains clear, the primer is dry. If the
 - 2. Primer for standard absorbent concrete subfloors: Dilute ARDEX P 51 1:1 with water and apply evenly with a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, thin film (min. 30 minutes, max. 24 hours). Underlayment shall not be applied until the primer is dry.
 - 3. Primer for extremely absorbent concrete subfloors: Make an initial application of ARDEX P 51 mixed with 3 parts water using a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry thoroughly (1 to 3 hours)

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before proceeding with the standard application of primer as described above for standard absorbent concrete.

- 4. Primer for non-porous subfloors such as burnished concrete, terrazzo, well-bonded ceramic, porcelain and quarry tile, epoxy coating systems, wooden subfloors and non-water soluble adhesive residues over concrete: Prime with ARDEX P 82 Ultra Prime (or equal). Follow the mixing instructions on the container and apply with a short-nap or sponge paint roller, leaving a thin coat of primer no heavier than a coat of paint. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, slightly tacky film (minimum 3 hours, maximum 24 hours). Underlayment shall not be installed until primer is dry. Note: If a suitable acrylic curing compound has been used on the concrete, test the surface for porosity. If the concrete is porous, prime with ARDEX P 51. If it is non-porous, prime with ARDEX P 82. For wood substrates, once the primer is applied, install 3.4 galvanized, expanded diamond metal lath mesh, stapling approximately every 6 inches (15.2 cm). Do not walk on wet primer.
- 5. Primer for metal substrates: Prime the prepared subfloor with ARDEX EP 2000 and immediately broadcast fine sand to refusal into the fresh epoxy. After a 16-hour cure
 - a. Do not sweep. Using a rubber squeegee, consolidate excess sand into piles.
 - b. Shovel the piles of sand into barrels.
 - c. Vacuum remaining sand using a heavy-duty, bucket-style (Shop-Vac®-style) vacuum and HEPA dust extraction vacuum system.
- D. Mixing: Comply with manufacturer's printed instructions and the following.
 - 1. Add 7 quarts (6.6 L) of clean potable water per 55 lb. (25 kg) bag. For applications over wood and metal, the addition of ARDEX E 25[™] Resilient Emulsion is required to increase the resiliency of the ARDEX K 15. In these cases, mix 2 quarts (1.9 L) of ARDEX E 25 with 6 quarts (5.68 L) of water for each bag of ARDEX K 15.
 - 2. Mix using a ½" (12 mm) heavy-duty drill (min. 650 rpm) with an ARDEX T-1 mixing paddle. Do not overwater. When mixing sanded materials, ARDEX recommends using the ARDEX DUSTFREE™ or a standard "gutter hook" vacuum attachment in combination with a wet/dry (Shop-Vac® style) vacuum and HEPA dust extraction vacuum system.Additionally, each bag should be handled with care and emptied slowly to avoid creating a plume of dust. Contact the ARDEX Technical Service Department for more details on ARDEX products and air quality management.
 - 3. Aggregate mix: For areas to be installed over 1 ½" (4 cm) thick, aggregate may be added to reduce material costs. Mix ARDEX K 15® with water first, then add 1 part aggregate by volume of washed, well-graded 1/8" to 3/8" (3 to 9.5 mm) pea gravel. The aggregate size must not exceed 1/3 the depth of the pour. Do not use sand. Note: The addition of aggregate will diminish the workability of the product and may make it necessary to install a finish coat to obtain a smooth surface. Allow the initial application to dry for 12 to 16 hours, and then prime this layer with ARDEX P 51 mixed 1: 1 with water. Allow the primer to dry (min. 30 minutes, max. 24 hours) before installing the neat coat of ARDEX K 15.
- E. For pump installations, ARDEX K 15[®] shall be mixed using the ARDEX ARDIFLO[™] Automatic Mixing Pumps. Contact the ARDEX Technical Service Department (888) 512-7339 for complete pump operation instructions.
- F. Application: Comply with manufacturer's printed instructions and the following:
 - 1. Installations over metal and other non-porous substrates should be limited to a thickness of ½" (12.7 mm) unless otherwise approved by the ARDEX Technical Services Department. For all other substrates, ARDEX K 15® must be installed at a minimum thickness of 1/8" (3 mm) over the highest point in the floor, which typically results in an average thickness of 1/4" (6 mm) or more over the entire floor. ARDEX K 15® can be installed up to 1 ½" (4cm) over large areas neat, and up to 5" (12.7 cm) with the addition of proper aggregate. ARDEX K 15® can also be featheredged to match existing elevations. If a true featheredge is needed, ARDEX recommends using ARDEX FEATHER FINISH® for transitions.
 - 2. Pour or pump the liquid ARDEX K 15[®] and spread into place with the ARDEX T-4 Spreader. Immediately use the ARDEX T-5 Smoother to smooth the surface. Wear nonmetallic cleats to avoid leaving marks in the liquid ARDEX K 15[®].

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- 3. Wood subfloors require the use of the mesh-reinforced ARDEX K 15® + E 25[™] Resilient Emulsion Underlayment System. After priming, install 3.4 galvanized diamond metal lath by stapling to the wooden subfloor approximately every 6 inches to center.
- 4. Metal subfloors require the use ARDEX K 15® + E 25[™] Resilient Emulsion Underlayment System.

G. Curing

 ARDEX K 15[®] can be walked on in 2-3 hours. Moisture-insensitive tiles such as ceramic, quarry and porcelain can be installed after 6 hours. All other finish floor coverings can be installed after 16 hours at 70°F (21°C). For resinous systems such as epoxy and polyurethane floors please contact the ARDEX Technical Services Department.

3.03 FIELD QUALITY CONTROL

A. Where specified, field sampling of the ARDEX underlayment is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only. There are no in situ test procedures for the evaluation of compressive strength.

3.04 PROTECTION

A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

END OF SECTION

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Concrete masonry units.
 - 2. Mortar and grout.
 - 3. Masonry joint reinforcement.
 - 4. Ties and anchors.
 - 5. Miscellaneous masonry accessories.
 - 6. Acoustic concrete masonry units.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
 - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
- C. Material Certificates: For each type and size of the following:
 - 1. Masonry units.
 - 2. Cementitious materials. Include brand, type, and name of manufacturer.
 - 3. Grout mixes. Include description of type and proportions of ingredients.
 - 4. Reinforcing bars.
 - 5. Joint reinforcement.
 - 6. Anchors, ties, and metal accessories.
- D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
- E. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type used in load-bearing wall construction, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry units 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
- F. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.5 QUALITY ASSURANCE

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

C. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained, and contamination avoided.
- D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 **PROJECT CONDITIONS**

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building load-bearing masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.
- B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fireresistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
- B. CMUs: ASTM C 90 for load-bearing CMU; ASTM C 129 for non-load-bearing CMU.
 - 1. Density Classification: Lightweight unless otherwise indicated.
 - 2. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
 - 3. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
 - 4. Faces to Receive Plaster: Where units are indicated to receive a direct application of plaster, provide textured-face units made with gap-graded aggregates.
 - 5. Specified compressive strength shall be:
 - a) f'm = 1,350 psi for partially grouted construction,
 - b) f'm = 1,500 psi for fully grouted construction,
- C. Sound Absorptive Units: "Type RSC/RF Soundblox" as manufactured by Westbrook Concrete BI
- D. Concrete Building Brick: ASTM C 55.
 - 1. Density Classification: Lightweight
 - 2. Size (Actual Dimensions): 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.

2.3 MASONRY LINTELS

- A. General: Where shown provide one of the following:
- B. Concrete Lintels: Precast or formed-in-place concrete lintels complying with requirements in Division 03 Section "Cast-in-Place Concrete" and with reinforcing bars indicated.
- C. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.4 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate for Mortar: ASTM C 144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 - 2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
 - 3. White-Mortar Aggregates: Natural white sand or crushed white stone.
 - 4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- D. Aggregate for Grout: ASTM C 404.
- E. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Euclid Chemical Company (The); Accelguard 80.
 - b. Grace Construction Products, W. R. Grace & Co. Conn.; Morset.
 - c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.
- F. Water: Potable.

2.5 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615 or ASTM A 996, Grade 60.
- B. Masonry Joint Reinforcement, General: ASTM A 951.
 - 1. Interior Walls: Mill- galvanized, carbon steel.
 - 2. Exterior Walls: Hot-dip galvanized, carbon steel.
 - 3. Wire Size for Side Rods: 0.148-inch diameter.
 - 4. Wire Size for Cross Rods: 0.148-inch diameter.
 - 5. Wire Size for Veneer Ties: 0.148-inch diameter.
 - 6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
 - 7. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.
- D. Masonry Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.187-inch- diameter, hot-dip galvanized, carbon-steel continuous wire.

2.6 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
 - 1. Mill-Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 641, Class 1 coating.
 - 2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.
 - 3. Steel Sheet, Galvanized after Fabrication: ASTM A 1008, Commercial Steel, with ASTM A 153, Class B coating.
 - 4. Steel Plates, Shapes, and Bars: ASTM A 36.
- B. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
 - 1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- diameter, hot-dip galvanized steel wire.
 - 2. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.187-inch- diameter, hot-dip galvanized steel wire.

2.7 MISCELLANEOUS ANCHORS

- A. Postinstalled Anchors: Chemical anchors.
 - 1. Load Capacity: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 2. 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.
 - 3. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.8 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Diedrich Technologies, Inc.
 - b. EaCo Chem, Inc.
 - c. ProSoCo, Inc.

2.9 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Use portland cement-lime mortar unless otherwise indicated.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
 - 1. For masonry below grade or in contact with earth, use [Type M] [Type S].
 - 2. For reinforced masonry, use [**Type S**] [**Type N**].
 - 3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
 - 4. For interior non-load-bearing partitions, Type O may be used instead of Type N.
- C. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

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	1.	For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
	2.	For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
	3.	For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.
В.	Lines a	nd Levels:
	1.	For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
	2.	For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
	3.	For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
	4.	For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
	5.	For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
	6.	For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
	7.	For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.
C.	Joints:	
	1.	For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
	2.	For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
	3.	For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.

- 4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
- 5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets.
 Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
 - 1. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Division 07 Section "Fire-Resistive Joint Systems."

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 - 2. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
 - 1. For glazed masonry units, use a nonmetallic jointer 3/4 inch or more in width.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches o.c.
 - 2. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at[**corners**,] returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry as follows:
 - 1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
 - 2. Locate vertical control joints to accommodate horizontal movement:
 - a) At changes in wall height and thickness,
 - b) Above / below movement joints in foundations, floors and roofs that bear on a wall,
 - c) Not to exceed the lesser of 1.5 times wall height or 25'-0" o.c.,
 - d) Within 1/2 of the joist spacing adjacent to corners or intersections,
 - e) Near one or both sides of openings.

- C. Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Joint Sealants," but not less than 3/8 inch.
 - 1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

3.8 LINTELS

- A. Install steel lintels where indicated.
- B. Provide lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- C. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.9 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 - 2. Limit height of vertical grout pours to not more than 60 inches.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections Level 2 special inspections according to the "International Building Code."
 - 1. Begin masonry construction only after inspectors have verified proportions of siteprepared mortar.
 - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
 - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.
- F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.
- H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.
- I. Prism Test: For each type of construction provided, according to ASTM C 1314 at [7 days and at]28 days.

3.11 PARGING

- A. Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.12 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 4. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
 - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.13 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soilcontaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
 - 1. Crush masonry waste to less than 4 inches in each dimension.
 - 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Division 31 Section "Earth Moving."
 - 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 2000

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PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Decorative concrete masonry veneer units.
- B. Clay facing brick.
- C. Precast Concrete Sills
- D. Flashings.
- E. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 042000-Unit Masonry for Mortar, Grout, Reinforcement, Anchorage and all other masonry information not included in this section.
- B. Section 040511 Mortar and Masonry Grout.
- C. Section 055000 Metal Fabrications : Loose steel lintels.
- D. Section 076200 Sheet Metal Flashing and Trim: Through-wall masonry flashings.
- E. Section 079200 Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

- A. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- B. ASTM A615/A615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.
- C. ASTM A641/A641M Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire 2019.
- D. ASTM A951/A951M Standard Specification for Steel Wire for Masonry Joint Reinforcement 2016, with Editorial Revision (2018).
- E. ASTM A1064/A1064M Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2018a.
- F. ASTM C90 Standard Specification for Loadbearing Concrete Masonry Units 2016a.
- G. ASTM C129 Standard Specification for Nonloadbearing Concrete Masonry Units 2017.
- H. ASTM C144 Standard Specification for Aggregate for Masonry Mortar 2018.
- I. ASTM C150/C150M Standard Specification for Portland Cement 2020.
- J. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes 2018.
- K. ASTM C216 Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale) 2019.
- L. ASTM C270 Standard Specification for Mortar for Unit Masonry 2019.
- M. ASTM C404 Standard Specification for Aggregates for Masonry Grout 2018.
- N. ASTM C476 Standard Specification for Grout for Masonry 2020.
- O. ASTM C979/C979M Standard Specification for Pigments for Integrally Colored Concrete 2016.
- P. ASTM D226/D226M Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing 2017.
- Q. ASTM D4637/D4637M Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane 2015.
- R. BIA Technical Notes No. 7 Water Penetration Resistance Design and Detailing 2017.
- S. BIA Technical Notes No. 28B Brick Veneer/Steel Stud Walls 2005.
- T. BIA Technical Notes No. 46 Maintenance of Brick Masonry 2017.

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- U. TMS 402/602 Building Code Requirements and Specification for Masonry Structures 2016.
- V. UL (FRD) Fire Resistance Directory Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units.
- C. Samples: Submit four samples of each color of decorative concrete masonry units to illustrate color, texture, and extremes of color range.
- D. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Pre-Faced Units: 5% of each type, size, and color combination.

1.06 QUALITY ASSURANCE

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
- B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum three years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.07 MOCK-UP

- A. Construct a masonry wall as a mock-up panel sized 8 feet long by 3 feet high; include mortar and accessories and structural backup in mock-up.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.09 FIELD CONDITIONS

- A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.
- B. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
- C. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.01 UNIT MASONRY - GENERAL

A. Comply with applicable code for UL Assembly requirements for fire rated masonry construction.

2.02 DECORATIVE CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards and as follows:
 - 1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.
 - Special Shapes: Provide non-standard block if indicated on drawings..
 a. Provide bullnose units for outside corners if indicated on drawings.
 - Load-Bearing Units: Refer to Section 042000 Unit Masonry
 - 4. Non-Loadbearing Units: ASTM C129.

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- a. Hollow block, as indicated.
- b. Exposed Faces: Ground Face
- c. Colors: To be selected from manufacturer's standard range.

2.03 BRICK UNITS

- A. Facing Brick: ASTM C216, Type FBS Smooth, Grade SW.
 - 1. Color and Texture: Match Existing
 - 2. Nominal Size: As indicated on drawings.

2.04 MORTAR AND GROUT MATERIALS

A. Mortar and Grout: As specified in Section 042000.

2.05 REINFORCEMENT AND ANCHORAGE

2.06 A. AS SPECIFIED IN SECTION 042000.

2.07 FLASHINGS

- A. Metal Flashing Materials: Copper, as specified in Section 076200.
- B. Metal Flashing Materials:
 - 1. Prefabricated Metal Flashing: Smooth fabricated 12 oz/sq ft copper flashing for surface mounted conditions.
 - a. Manufacturers:
 - 1) Cheney Flashing Company; [____]: www.cheneyflashing.com/#sle.
 - 2) Hohmann & Barnard, Inc; _____]: www.h-b.com/#sle.
 - 3) Substitutions: See Section 016000 Product Requirements.
- C. Combination Asphaltic Flashing Materials Copper:
 - 1. Copper/Asphalt Flashing: 3 oz/sq ft copper sheet coated with elastic asphalt compound on both sides.
 - a. Manufacturers:
 - 1) WIRE-BOND; [____]: www.wirebond.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
- D. Combination Non-Asphaltic Flashing Materials Copper:
 - 1. Copper/Polymer Film or Fabric Flashing: 3 oz/sq ft copper sheet laminated between two sheets of polymer or fiberglass fiber-reinforced film.
 - a. Manufacturers:
 - 1) Advanced Building Products, Inc; [____]: www.advancedbuildingproducts.com/#sle.
 - 2) Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - 3) York Manufacturing, Inc; Multi-Flash 500 Series: www.yorkmfg.com/#sle.
 - 4) Substitutions: See Section 016000 Product Requirements.
 - 2. Copper/Polymer Film or Fabric Flashing Self-Adhering: 3 oz/sq ft copper sheet bonded on inward facing side to a sheet of polymer or fiberglass fabric that has a clear adhesive with a removable release liner.
 - a. Manufacturers:
 - 1) Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
- E. Membrane Asphaltic Flashing Materials:
 - 1. Rubberized Asphalt Flashing: Self-adhering polymer modified asphalt sheet; 40 mils (0.040 inch) minimum total thickness; 8 mil cross-laminated polyethylene bonded to adhesive rubberized asphalt, with a removable release liner.
 - a. Manufacturers:
 - 1) Advanced Building Products, Inc; [____]: www.advancedbuildingproducts.com/#sle.
 - 2) Heckmann Building Products, Inc; [____]: www.heckmannbuildingprods.com/#sle
 - 3) WIRE-BOND; [____]: www.wirebond.com/#sle.
 - 4) York Manufacturing, Inc; York Seal: www.yorkmfg.com/#sle.
 - 5) Substitutions: See Section 016000 Product Requirements.

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- F. Membrane Non-Asphaltic Flashing Materials:
 - 1. Composite Polymer Flashings Self-Adhering: Composite polyethylene; 40 mil thick with pressure-sensitive adhesive and release paper.
 - a. Manufacturers:
 - 1) Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - 2) Hyload, Inc; [____]: www.hyload.com/#sle.
 - 3) Substitutions: See Section 016000 Product Requirements.
 - 2. EPDM Flashing: ASTM D4637/D4637M, Type I, 0.040 inch thick.
 - a. Manufacturers:
 - 1) Heckmann Building Products, Inc; [___]: www.heckmannbuildingprods.com/#sle.
 - 2) Hohmann & Barnard, Inc; [___]: www.h-b.com/#sle.
 - 3) WIRE-BOND; []: www.wirebond.com/#sle.
 - 4) Substitutions: See Section 016000 Product Requirements.
- G. Factory-Fabricated Flashing Corners and Ends: Stainless steel.
 - 1. Manufacturers:
 - a. Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - b. Mortar Net Solutions; CompleteFlash: www.mortarnet.com/#sle.
 - c. York Manufacturing, Inc; [____]: www.yorkmfg.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- H. Flashing Sealant/Adhesives: Silicone, polyurethane, or silyl-terminated polyether/polyurethane, or other type required or recommended by flashing manufacturer; type capable of adhering to type of flashing used.
 - 1. Manufacturers, Synthetic Rubber Products:
 - a. Mortar Net Solutions; BTL-1 Butyl Sealant: www.mortarnet.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
 - 2. Manufacturers, Modified Polyether Products:
 - a. Mortar Net Solutions; [____]: www.mortarnet.com/#sle.
 - b. York Manufacturing, Inc; UniverSeal US-100 Liquid Tape: www.yorkmfg.com/#sle.
 - c. Substitutions: See Section 016000 Product Requirements.
- I. Termination Bars: Stainless steel; compatible with membrane and adhesives.
 - 1. Manufacturers:
 - a. Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - b. Mortar Net Solutions; Termination Bars: www.mortarnet.com/#sle.
 - c. York Manufacturing, Inc; [____]: www.yorkmfg.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- J. Drip Edge: Stainless steel; compatible with membrane and adhesives.
 - 1. Manufacturers:
 - a. Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - b. Mortar Net Solutions; Metal Drip Edges: www.mortarnet.com/#sle.
 - c. York Manufacturing, Inc; [____]: www.yorkmfg.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- K. Lap Sealants and Tapes: As recommended by flashing manufacturer; compatible with membrane and adhesives.

2.08 ACCESSORIES

- A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.
 - 1. Manufacturers:
 - a. Blok-Lok Limited; [____]: www.blok-lok.com/#sle.
 - b. Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - c. WIRE-BOND; [____]: www.wirebond.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- B. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.

- 1. Manufacturers:
 - a. Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - b. WIRE-BOND; [____]: www.wirebond.com/#sle.
 - c. Substitutions: See Section 016000 Product Requirements.
- C. Building Paper: ASTM D226/D226M, Type I ("No. 15") asphalt felt.
- D. Weeps:
 - 1. Type: Molded PVC grilles, insect resistant.
 - 2. Color(s): As selected by Architect from manufacturer's full range.
 - 3. Manufacturers:
 - a. Advanced Building Products, Inc; [____]: www.advancedbuildingproducts.com/#sle.
 - b. Blok-Lok Limited; [_____]: www.blok-lok.com/#sle.
 - c. CavClear/Archovations, Inc; [____]: www.cavclear.com/#sle.
 - d. Hohmann & Barnard, Inc; [____]: www.h-b.com/#sle.
 - e. Mortar Net Solutions; WeepVent: www.mortarnet.com/#sle.
 - f. WIRE-BOND; [____]: www.wirebond.com/#sle.
 - g. Substitutions: See Section 016000 Product Requirements.
- E. Drainage Fabric: Polyester mesh bonded to a water and vapor-permeable fabric.
 - 1. Manufacturers:
 - a. Advanced Building Products, Inc; [____]: www.advancedbuildingproducts.com/#sle.
 - b. Mortar Net Solutions; DriPlane: www.mortarnet.com/#sle.
 - c. York Manufacturing, Inc; Weep Armor Weep Vent Protection: www.yorkmfg.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- F. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.
 - 1. Mortar Diverter: Panels installed at flashing locations.
 - a. Manufacturers:
 - 1) Advanced Building Products, Inc; [_____]:
 - www.advancedbuildingproducts.com/#sle.
 - 2) CavClear/Archovations, Inc; [____]: www.cavclear.com/#sle.
 - 3) Mortar Net Solutions; MortarNet: www.mortarnet.com/#sle.
 - 4) Substitutions: See Section 016000 Product Requirements.
- G. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.

3.02 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
 - 1. Bond: Running.
 - 2. Coursing: One unit and one mortar joint to equal 8 inches.
 - 3. Mortar Joints: Concave.
- D. Brick Units:
 - 1. Bond: Match existing coursing..
 - 2. Mortar Joints: Match existing.

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3.03 PLACING AND BONDING

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D. Remove excess mortar as work progresses.
- E. Interlock intersections and external corners, except for units laid in stack bond.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- H. Isolate top joint of masonry veneer from horizontal structural framing members or support angles with compressible joint filler.

3.04 WEEPS/CAVITY VENTS

A. Install weeps in veneer walls at 24 inches on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

3.05 CAVITY MORTAR CONTROL

- A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.
- B. For cavity walls, build inner wythe ahead of outer wythe to accommodate accessories.
- C. Install cavity mortar control panels continuously throughout full height of exterior masonry cavities during construction of exterior wythe, complying with manufacturer's installation instructions.
 - 1. Verify that airspace width is no more than 3/8 inch greater than panel thickness.
 - 2. Stagger end joints in adjacent rows.
 - 3. Fit to perimeter construction and penetrations without voids.
- D. Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.06 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

- A. Install horizontal joint reinforcement 16 inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Embed longitudinal wires of joint reinforcement in mortar joint with at least 5/8 inch mortar cover on each side.
- E. Lap joint reinforcement ends minimum 6 inches.
- F. Masonry Back-Up: Embed anchors to bond veneer at maximum 16 inches on center vertically and 36 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

3.07 MASONRY FLASHINGS

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
 - 1. Extend flashings full width at such interruptions and at least 6 inches, minimum, into adjacent masonry or turn up at least 1 inch, minimum, to form watertight pan at non-masonry construction.
 - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
 - 3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Terminate flashing up 8 inches minimum on vertical surface of backing:
 - 1. Install vertical leg of flashing behind water-resistive barrier sheet over backing.

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- 2. Anchor vertical leg of flashing into backing with a continuous termination bar and sealant.
- 3. Apply cap bead of sealant on top edge of self-adhered flashing.
- C. Install flashing in accordance with manufacturer's instructions and BIA Technical Notes No. 7.
- D. Extend metal flashings through exterior face of masonry and terminate in an angled drip with hemmed edge. Install joint sealer below drip edge to prevent moisture migration under flashing.
- E. Support flexible flashings across gaps and openings.
- F. Extend flashings to within 1/2 inch of exterior face of masonry and adhere to top of stainless steel angled drip with hemmed edge.
- G. Lap end joints of flashings at least 6 inches, minimum, and seal watertight with flashing sealant/adhesive.

3.08 LINTELS

- A. Install loose steel lintels over openings.
- B. Maintain minimum 8 inch bearing on each side of opening.

3.09 CONTROL AND EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcement through control or expansion joints.
- B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
- C. Size control joints as indicated on drawings; if not indicated, 3/4 inch wide and deep.
- D. Form expansion joint as detailed on drawings.

3.10 TOLERANCES

- A. Install masonry within the site tolerances found in TMS 402/602.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.

3.11 CUTTING AND FITTING

- A. Cut and fit for pipes and conduit. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.12 CLEANING

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

3.13 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

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SECTION 051200 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Structural steel.
 - 2. Grout.

1.3 **DEFINITIONS**

A. Structural Steel: Elements of structural-steel frame, as classified by AISC's "Code of Standard Practice for Steel Buildings and Bridges," that support design loads.

1.4 SUBMITTALS

Β.

- A. Product Data: For each type of product indicated.
 - Shop Drawings: Show fabrication of structural-steel components.
 - 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
 - 2. Include embedment drawings.
 - 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.
 - 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.
 - 5. Identify members and connections of the Seismic-Load-Resisting System.
 - 6. For structural-steel connections indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Welding certificates.
- D. Qualification Data: For Installer, fabricator, professional engineer and testing agency.
- E. Mill and Product Test Reports: Signed by manufacturers certifying that the following products comply with requirements:
 - 1. Structural steel including chemical and physical properties.
 - 2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 - 3. Direct-tension indicators.
 - 4. Tension-control, high-strength bolt-nut-washer assemblies.
 - 5. Shop primers.
 - 6. Nonshrink grout.
- F. Source quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ACSE or CSE.
- B. Fabricator Qualifications: A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
- C. Fabricators certified under the AISC Quality Certification Program in a category of structural steel work appropriate to the work defined are exempt from Special Inspection requirements for "On premises inspection of fabricated items", and "Review each Fabricator's quality control procedures" as listed in Division 01 Section "Code Required Special Inspections and

Procedures." Non-AISC fabricators shall be subject to these special inspections, and shall be responsible for the inspection costs associated with these inspections.

- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."
- E. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. AISC's "Seismic Provisions for Structural Steel Buildings" and "Supplement No. 2."
 - 3. AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."
 - 4. AISC's "Specification for the Design of Steel Hollow Structural Sections."
 - 5. AISC's "Specification for Allowable Stress Design of Single-Angle Members."
 - 6. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."
- G. Survey of existing conditions,
- H. Field quality-control and special inspection reports.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from erosion and deterioration.
 - 1. Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.
 - 2. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.7 COORDINATION

- A. Furnish anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.
 - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repairs or replace damaged materials or structures as directed.
- B. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- C. Coordinate installation on anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Connections: Provide details of connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand ASD-service loads indicated and comply with other information and restrictions indicated.
 - 1. Select and complete connections using schematic details indicated and AISC's "Manual of Steel Construction 13th Edition, Allowable Stress Design," Part 9.
 - 2. Engineering Responsibility: Fabricator's responsibilities include using a qualified professional engineer to prepare structural analysis data for structural-steel connections.
- B. Moment Connections: Type FR, fully restrained.

C. Construction: Moment frame.

2.2 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A 992 and ASTM A 572, Grade 50.
- B. Channels, Angles-Shapes: ASTM A 36.
- C. Plate and Bar: ASTM A 36.
- D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.
- E. Steel Pipe: ASTM A 53, Type E or S, Grade B.
 - 1. Weight Class: Standard.
 - 2. Finish: Black, except where indicated to be galvanized.
- F. Welding Electrodes: Comply with AWS requirements.

2.3 BOLTS, CONNECTORS, AND ANCHORS

- A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy hex steel structural bolts; ASTM A 563, Grade C, heavy hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.
 - 1. Direct-Tension Indicators: ASTM F 959, Type 325 compressible-washer type with plain finish.
- B. High-Strength Bolts, Nuts, and Washers: ASTM A 490, Type 1, heavy hex steel structural bolts; ASTM A 563, grade DH, heavy hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.
 - 1. Direct-Tension Indicators: ASTMF959, Type 490, compressible-washer type with plain finish.
- C. Unheaded Anchor Rods: ASTM A 36.
 - 1. Configuration: Straight.
 - 2. Nuts: ASTM A 563 heavy-hex carbon steel.
 - 3. Plate Washers: ASTM A 36 carbon steel.
 - 4. Washers: ASTM F 436, Type 1, hardened carbon steel.
 - 5. Finish: Plain.
- D. Threaded Rods: ASTM A 36.
 - 1. Nuts: ASTM A 563 heavy-hex carbon steel.
 - 2. Washers: ASTM F 436 Type 1, hardened carbon steel.
 - 3. Finish: Plain.
- E. Clevises and Turnbuckles: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1035.
- F. Eye Bolts and Nuts: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1030.
- G. Sleeve Nuts: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1018.

2.4 PRIMER

- A. Primer: Comply with Division 09 Sections "Exterior Painting," "Interior Painting," and "High Performance Painting."
- B. Primer: Fabricator's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer complying with MPI#79 and compatible topcoat.
- C. Galvanizing Repair Paint: MPI#18, MPI#19, or SSPC-Paint 20.

2.5 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

2.6 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."
 - 1. Camber structural-steel members where indicated.
 - 2. Identify high-strength structural steel according to ASTM A 6 and maintain markings until structural steel has been erected.
 - 3. Mark and match-mark materials for field assembly.
 - 4. Complete structural-steel assemblies, including welding of units, before starting shoppriming operations.
 - 5. Fabricate beam with rolling camber up.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1.B
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
 - 1. Do not thermally cut bolt holes or enlarge holes by burning.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 2, "Hand Tool Cleaning."
- F. Holes: Provide holes required for securing other work to structural steel and for passage of other work through steel framing members.
 - 1. Cut, drill, or punch holes perpendicular to steel surfaces.
 - 2. Base-Plate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.7 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 - 1. Joint Type: Snug tightened, except slip critical at wind frames and moment connections.
- B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
 - 1. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
 - 2. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.
 - 3. Verify that weld sizes, fabrication sequence, and equipment used for architecturally exposed structural steel will limit distortions to allowable tolerances. Prevent weld show-through on exposed steel surfaces.
 - a. Grind butt welds flush.
 - b. Grind or fill exposed fillet welds to smooth profile. Dress exposed welds.

2.8 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
 - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
 - 2. Surfaces to be field welded.
 - 3. Surfaces to be high-strength bolted with slip-critical connections.
 - 4. Surfaces to receive sprayed fire-resistive materials (Applied fireproofing).
 - 5. Galvanized surfaces.
 - 6. Machined or milled surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

- 1. SSPC-SP 3, "Power Tool Cleaning."
- 2. SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning."
- 3. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils and an average thickness of 2.0 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 - 2. Apply two coats of shop paint to inaccessible surfaces after assembly or erection. Change color of second coat to distinguish it from first.
- D. Painting: Prepare steel and apply a one-coat, non-asphaltic primer complying with SSPCPS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils.

2.9 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123.
 - 1. Fill vent and drain holes by plugging with zinc solder and filing off smooth.
 - 2. Galvanize lintels and shelf angles attached to structural-steel frame and located in exterior walls.

2.10 SOURCE QUALITY CONTROL

- A. Owner will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports.
 - 1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
 - 2. AISC Quality-Certified Fabricator: Owner will waive testing and inspection.
- B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.
- C. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to AWS D1.1 and the following inspection procedures, at testing agency's option:
 - 1. Ultrasonic Inspection: ASTM E 164.
- E. In addition to visual inspection, shop-welded shear connectors will be tested and inspected according to requirements in AWS D1.1 for stud welding and as follows:
 - 1. Bend tests will be performed if visual inspections reveal either a less-than- continuous 360-degree flash or welding repairs to any shear connector.
 - 2. Tests will be conducted on additional shear connectors if weld fracture occurs on shear connectors already tested, according to requirements in AWS D1.1.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments, with steel erector present, for compliance with requirements.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 **PREPARATION**

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated.
 - 1. Do not remove temporary shoring supporting composite deck construction until cast-inplace concrete has attained its design compressive strength.

3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."
- B. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
 - 1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Weld plate washers to top of base plate.
 - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate before packing with grout.
 - 4. Promptly pack grout solidly between bearing surfaces and base or bearing plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.1.
- G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 - 1. Joint Type: Snug tightened, except slip critical for wind frames and moment connections.
- B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
 - 1. Comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design" for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 - 2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
 - 3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - 1. Verify structural –steel materials and inspect steel frame joint details.
 - 2. Verify weld materials and inspect welds.
 - 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections.
- C. Bolted Connections: Bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Welded Connections: Field welds will be visually inspected according to AWS D1.1.
 - 1. In addition to visual inspection, field welds will be tested according to AWS D1.1 and the following inspection procedures, at testing agency's option:
 - a. Ultrasonic Inspection: ASTM E 164.
- E. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.6 REPAIRS AND PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.
- B. Touchup Painting: After installation, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists and accessories, bearing plates, and abutting structural steel.
 - 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
 - 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
- C. Touchup Painting: Cleaning and touchup painting are specified in Division 09 Sections "Exterior Painting" and "Interior Painting".
- D. Touchup Priming: Cleaning and touchup priming are specified in Division 09 Sections "High Performance Coatings," "Exterior Painting," and "Interior Painting."

END OF SECTION 051200

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SECTION 052100 - STEEL JOIST FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. K-series steel joists.
 - 2. Joist accessories.

1.3 **DEFINITIONS**

- A. SJI "Specifications": Steel Joist Institute's "Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders."
- B. Special Joists: Steel joists or joist girders requiring modification by manufacturer to support nonuniform, unequal, or special loading conditions that invalidate load tables in SJI's "Specifications."

1.4 **PERFORMANCE REQUIREMENTS**

- A. Structural Performance: Provide special joists and connections capable of withstanding design loads indicated.
- B. Design special joists to withstand design loads with live load deflections no greater than the following:
 - 1. Roof Joists: Vertical deflection of 1/240 of the span.
- C. Wind Uplift Loads:
 - 1. Eaves and Overhangs: Per Schedule.
 - 2. Roof Field: 20 psf minimum.

1.5 SUBMITTALS

- A. Product Data: For each type of joist, accessory, and product indicated.
- B. Shop Drawings: Show layout, designation, number, type, location, and spacing of joists. Include joining and anchorage details, bracing, bridging, joist accessories; splice and connection locations and details; and attachments to other construction.
 - 1. Indicate locations and details of bearing plates to be embedded in other construction.
 - 2. Comprehensive engineering analysis of special joists signed and sealed by the qualified professional engineer responsible for its preparation.
- C. Welding certificates.
- D. Manufacturer Certificates: Signed by manufacturers certifying that joists comply with requirements.
- E. Mill Certificates: Signed by bolt manufacturers certifying that bolts comply with requirements.
- F. Qualification Data: For manufacturer and professional engineer.
- G. Field quality-control test and inspection reports.
- H. Research/Evaluation Reports: For joists.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer certified by SJI to manufacture joists complying with applicable standard specifications and load tables of SJI "Specifications."

- 1. Manufacturer's responsibilities include providing professional engineering services for designing special joists to comply with performance requirements.
- B. SJI Specifications: Comply with standard specifications in SJI's "Specifications" that are applicable to types of joists indicated.
- C. Welding: Qualify field-welding procedures and personnel according to AWS D1.1, "Structural Welding Code Steel."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle joists as recommended in SJI's "Specifications."
- B. Protect joists from corrosion, deformation, and other damage during delivery, storage, and handling.

1.8 SEQUENCING

A. Deliver steel bearing plates to be built into cast-in-place concrete and masonry construction.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide special joists and connections capable of withstanding design loads indicated.
 - 1. Use ASD; data are given at service-load level.
 - 2. Design special joists to withstand design loads with live-load deflections no greater than the following:
 - a. Roof Joists: Vertical deflection of 1/360 of the span.

2.2 MATERIALS

- A. Steel: Comply with SJI's "Specifications" for web and steel-angle chord members.
- B. Steel Bearing Plates: ASTM A 36.
- C. Carbon-Steel Bolts and Threaded Fasteners: ASTM A 307, Grade A, carbon-steel, hex-head bolts and threaded fasteners; carbon-steel nuts; and flat, unhardened steel washers.
 1. Finish: Plain, uncoated.

2.3 K-SERIES STEEL JOISTS

- A. Manufacture steel joists of type indicated according to "Standard Specifications for Open Web Steel Joists, K-Series" in SJI's "Specifications," with steel-angle top- and bottom-chord members, underslung ends, and parallel top chord.
 - 1. Joist Type: K-series steel joists.
- B. Comply with AWS requirements and procedures for shop welding, appearance, quality of welds, and methods used in correcting welding work.
- C. Provide holes in chord members for connecting and securing other construction to joists.
- D. Extended Ends: Extend bearing ends of joists with SJI's Type R or S extended ends where indicated, complying with SJI's "Specifications."
- E. Do not camber joists.
- F. Equip bearing ends of joists with manufacturer's standard beveled ends or sloped shoes if joist slope exceeds 1/4 inch per 12 inches.

2.4 PRIMERS

A. Primer: SSPC-Paint 15, or manufacturer's standard shop primer complying with performance requirements in SSPC-Paint 15.
B. Primer: Provide shop primer that complies with Division 09 Sections "Exterior Painting", "Interior Painting", and "High-Performance Coatings".

2.5 JOIST ACCESSORIES

- A. Bridging: Provide bridging anchors and number of rows of horizontal or diagonal bridging of material, size, and type required by SJI's "Specifications" for type of joist, chord size, spacing, and span. Furnish additional erection bridging if required for stability.
- B. Fabricate steel bearing plates from ASTM A 36 steel with integral anchorages of sizes and thicknesses indicated. Shop prime paint.
- C. Supply ceiling extensions, either extended bottom-chord elements or a separate extension unit of enough strength to support ceiling construction. Extend ends to within 1/2 inch of finished wall surface, unless otherwise indicated.
- D. Supply miscellaneous accessories, including splice plates and bolts required by joist manufacturer to complete joist installation.
- E. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy hex steel structural bolts; ASTM A 563 heavy hex carbon-steel nuts; and ASTM F 436 hardened carbon-steel washers.
 1. Finish: Plain.
- F. Welding Electrodes: Comply with AWS standards.

2.6 CLEANING AND SHOP PAINTING

- A. Clean and remove loose scale, heavy rust, and other foreign materials from fabricated joists and accessories by hand-tool cleaning, SSPC-SP 2 or power-tool cleaning, SSPC-SP 3.
- B. Do not prime paint joists and accessories to receive sprayed fire-resistive materials.
- C. Apply 1 coat of shop primer to joists and joist accessories to be primed to provide a continuous, dry paint film not less than 1 mil thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting substrates, embedded bearing plates, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Do not install joists until supporting construction is in place and secured.
- B. Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Specifications," joist manufacturer's written recommendations, and requirements in this Section.
 - 1. Before installation, splice joists delivered to Project site in more than one piece.
 - 2. Space, adjust, and align joists accurately in location before permanently fastening.
 - 3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
 - 4. Delay rigidly connecting bottom-chord extensions to columns or supports until dead loads have been applied.
- C. Field weld joists to supporting steel bearing plates. Coordinate welding sequence and procedure with placement of joists. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - 1. Weld and bolt joists with end movement connections as indicated.
- D. Bolt joists to supporting steel framework using carbon-steel bolts, 2-3/4-inch minimum.

- E. Bolt joists to supporting steel framework using high-strength structural bolts. Comply with RCSC's "Specification for Structural Joints Using ASTM A 325 or ASTM A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
- F. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and bolted connections and to perform field tests and inspections and prepare test and inspection reports.
- B. Field welds will be visually inspected according to AWS D1.1.
- C. In addition to visual inspection, field welds will be tested according to AWS D1.1 and the following procedures, as applicable:
 - 1. Ultrasonic Testing: ASTM E 164.
- D. Bolted connections will be visually inspected.
- E. High-strength, field-bolted connections will be tested and verified according to procedures in RCSC's "Specification for Structural Joints Using ASTM A 325 or ASTM A 490 Bolts."
- F. Correct deficiencies in Work that test and inspection reports have indicated are not in compliance with specified requirements.
- G. Additional testing will be performed to determine compliance of corrected Work with specified requirements.

3.4 REPAIRS AND PROTECTION

- A. Touchup Painting: After installation, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists, bearing plates, abutting structural steel, and accessories.
 - 1. Clean and prepare surfaces by hand-tool cleaning, SSPC-SP 2, or power-tool cleaning, SSPC-SP 3.
 - 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that joists and accessories are without damage or deterioration at time of Substantial Completion.

SECTION 053100 - STEEL DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Roof deck.
 - 2. Acoustical roof deck.

1.3 SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.
- C. Product Certificates: For each type of steel deck, signed by product manufacturer.
- D. Welding certificates.
- E. Field quality-control test and inspection reports.
- F. 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.
 - 2. Acoustical roof deck.
- G. Evaluation Reports: For steel deck, from ICC-ES.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated.
- B. Source Limitations for Electrified Cellular Floor Deck: Obtain cellular floor-deck units and compatible electrical components, such as preset inserts, activation kits, afterset inserts, service fittings, header ducts, and trench header ducts, from same manufacturer.
- C. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code Sheet Steel."
- D. FMG Listing: Provide steel roof deck evaluated by FMG 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.
 - 1. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

1.6 COORDINATION

A. Coordinate installation of sound-absorbing insulation strips in topside ribs of acoustical deck with roofing installation specified in Division 07 Section "Roofing" to ensure protection of insulation strips against damage from effects of weather and other causes.

B. Coordinate layout and installation of trench headers, preset inserts, duct fittings, and other components specified in Division 26 Section "Underfloor Raceways for Electrical Systems" with installation of electrified cellular metal floor deck.

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. Fire-Resistance Ratings: Where indicated, provide steel deck units identical to those tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Indicate by design designations of applicable testing and inspecting agency.
 - 2. Indicate design designations from UL's "fire Resistance Directory" or from the listings of another qualified testing agency

2.2 MANUFACTURERS

- A. Fire-Test-Response Characteristics: Where indicated, provide steel deck units identical to those tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Fire-Resistance Ratings: Indicated by design designations of applicable testing and inspecting agency.
 - 2. Steel deck units shall be identified with appropriate markings of applicable testing and inspecting agency.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Steel Deck:
 - a. Consolidated Systems, Inc.
 - b. Epic Metals Corporation.
 - c. Nucor Corp.; Vulcraft Division.
 - d. United Steel Deck, Inc.
 - e. Verco Manufacturing Co.
 - f. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.

2.3 ROOF DECK

- A. Steel 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. Galvanized Steel Sheet: ASTM A 653, Structural Steel, Grade 33, G60 zinc coating.
 - 2. Galvanized and Shop-Primed Steel Sheet: ASTM A 653, Structural Steel, Grade 33, G60 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.
 - a. Color: White.
 - 3. Deck Profile: Type WR, wide rib.
 - 4. Profile Depth: 1-1/2 inches, unless otherwise indicated.
 - 5. Design Uncoated-Steel Thickness: 20 gauge.
 - 6. Span Condition: As indicated.
 - 7. Side Laps: Overlapped.

2.4 ACOUSTICAL ROOF DECK

A. Acoustical Steel 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. Galvanized and Shop-Primed Steel Sheet: ASTM A 653, Structural Steel, Grade 33, G60 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.
 - a. Color: White.
- 2. Deck Profile: Type WR, wide rib.
- 3. Profile Depth: 1-1/2 inches.
- 4. Design Uncoated-Steel Thickness: 20 gauge.
- 5. Span Condition: As indicated.
- 6. Side Laps: Overlapped.
- 7. Acoustical Perforations: Deck units with manufacturer's standard perforated vertical webs.
- 8. Sound-Absorbing Insulation: Manufacturer's standard pre-molded roll or strip of glass or mineral fiber.
 - a. Installation of sound-absorbing insulation is specified in Division 07 Section "Roofing".
- 9. Acoustical Performance: NRC 0.60, tested according to ASTM C 423.

2.5 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. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi, of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 31 for overhang and slab depth.
- G. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck, unless otherwise indicated.
- H. Piercing Hanger Tabs: Piercing steel sheet hanger attachment devices for use with floor deck.
- I. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0598 inch thick, with factorypunched hole of 3/8-inch minimum diameter.
- J. Recessed Sump Pans: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck, with 3-inch- wide flanges and level recessed pans of 1-1/2-inch minimum depth. For drains, cut holes in the field.
- K. Flat Sump Plate: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.
- L. Galvanizing Repair Paint: SSPC-Paint 20 or MIL-P-21035B, with dry film containing a minimum of 94 percent zinc dust by weight.
- M. 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. Install temporary shoring before placing deck panels, if required to meet deflection limitations.
- C. Locate deck bundles to prevent overloading of supporting members.
- D. 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.
 - 1. Align cellular deck panels over full length of cell runs and align cells at ends of abutting panels.
- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
- G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.
- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
- I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 ROOF-DECK INSTALLATION

- A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches long, and as follows:
 - 1. Weld Diameter: 5/8 inch, nominal.
 - 2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds 12 inches apart in the field of roof and 6 inches apart in roof corners and perimeter, based on roof-area definitions in FMG Loss Prevention Data Sheet 1-28.
 - 3. Weld Washers: Install weld washers at each weld location.
- B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 36 inches, and as follows:
 - 1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon-steel screws.
 - 2. Fasten with a minimum of 1-1/2-inch- long welds.
- C. 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.
- D. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and mechanically fasten flanges to top of deck. Space mechanical fasteners not more than 12 inches apart with at least one fastener at each corner.
- E. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.
 - 1. Weld cover plates at changes in direction of roof-deck panels, unless otherwise indicated.
- F. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

G. Sound-Absorbing Insulation: Installation into topside ribs of deck as specified in in Division 07 Section "Roofing".

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- 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 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. 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.
 - 2. Wire brushing, cleaning, and repair painting of bottom deck surfaces are included in Division 09 Sections "Exterior Painting" and "Interior Painting."
- C. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

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SECTION 055000 METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel and aluminum items.

1.02 RELATED REQUIREMENTS

- A. Section 033000 Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 042000 Unit Masonry: Placement of metal fabrications in masonry.
- C. Section 051200 Structural Steel Framing: Structural steel column anchor bolts.
- D. Section 052100 Steel Joist Framing: Structural joist bearing plates, including anchorage.
- E. Section 053100 Steel Decking: Bearing plates for metal deck bearing, including anchorage.
- F. Section 099123 Interior Painting: Paint finish.

1.03 REFERENCE STANDARDS

- A. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum 2014 (2015 Errata).
- B. AAMA 2604 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- C. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- D. ASTM A276/A276M Standard Specification for Stainless Steel Bars and Shapes 2017.
- E. ASTM A36/A36M Standard Specification for Carbon Structural Steel 2014.
- F. ASTM A53/A53M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2020.
- G. ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- H. ASTM A283/A283M Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates 2018.
- I. ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2014, with Editorial Revision (2017).
- J. ASTM A501/A501M Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing 2021.
- K. ASTM A554 Standard Specification for Welded Stainless Steel Mechanical Tubing 2016.
- L. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- M. ASTM A1011/A1011M Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2018a.
- N. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.
- O. ASTM B210/B210M Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes 2019a.
- P. ASTM B211/B211M Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire 2019.
- Q. ASTM B26/B26M Standard Specification for Aluminum-Alloy Sand Castings 2018, with Editorial Revision.

- R. ASTM B85/B85M Standard Specification for Aluminum-Alloy Die Castings 2018, with Editorial Revision.
- S. ASTM B177/B177M Standard Guide for Engineering Chromium Electroplating 2011 (Reapproved 2017).
- T. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.
- U. ASTM B209M Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) 2014.
- V. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2020.
- W. ASTM F3125/F3125M Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength 2019, with Editorial Revision (2020).
- X. AWS A2.4 Standard Symbols for Welding, Brazing, and Nondestructive Examination 2012.
- Y. AWS D1.1/D1.1M Structural Welding Code Steel 2020.
- Z. AWS D1.2/D1.2M Structural Welding Code Aluminum 2014, with Errata.
- AA. SSPC-Paint 15 Steel Joist Shop Primer/Metal Building Primer 1999 (Ed. 2004).
- BB. SSPC-Paint 20 Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic") 2002 (Ed. 2004).
- CC. SSPC-SP 2 Hand Tool Cleaning 2018.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- E. Stainless Steel, General: ASTM A666, Type 304.
- F. Stainless Steel Tubing: ASTM A554, Type 304, 16 gauge, 0.0625 inch minimum metal thickness, 1-1/2 inch diameter.
- G. Stainless Steel Bars, Shapes and Moldings: ASTM A276/A276M, Type 304.
- H. Slotted Channel Framing: ASTM A653/A653M, Grade 33.
- I. Stainless Steel Finish: No. 4 Bright Polished finish.
- J. Slotted Channel Fittings: ASTM A1011/A1011M.
- K. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.
- L. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.
- M. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

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- N. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- O. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- P. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.
- B. Sheet Aluminum: ASTM B209 (ASTM B209M), 5052 alloy, H32 or H22 temper.
- C. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210/B210M, 6063 alloy, T6 temper.
- D. Aluminum-Alloy Bars: ASTM B211/B211M, 6061 alloy, T6 temper.
- E. Aluminum-Alloy Sand Castings: ASTM B26/B26M.
- F. Aluminum-Alloy Die Castings: ASTM B85/B85M.
- G. Bolts, Nuts, and Washers: Stainless steel.
- H. Welding Materials: AWS D1.2/D1.2M; type required for materials being welded.

2.03 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 FABRICATED ITEMS

- A. Channels and Plates Not Attached to Structural Framing: ; prime paint finish.
- B. Lintels: As detailed; prime paint finish.
- C. Slotted Channel Framing: Fabricate channels and fittings from structural steel complying with the referenced standards; factory-applied, rust-inhibiting thermoset acrylic enamel finish.

2.05 FINISHES - STEEL

- A. Prime paint steel items.
 - 1. Exceptions: Galvanize items to be embedded in concrete, items to be embedded in masonry, items specified for exterior finish, and Items exposed to the exterior.
 - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.
- F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

2.06 FINISHES - ALUMINUM

- A. Exterior Aluminum Surfaces: Class I natural anodized where indicated on Drawings.
- B. Interior Aluminum Surfaces: Class I natural anodized.
- C. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

2.07 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components as indicated on drawings.
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed , except surfaces to be in contact with concrete.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

SECTION 061063 MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof-mounted curbs.
- Β. Roofing nailers.
- C. Roofing cant strips.
- D. Preservative treated wood materials.
- E. Fire retardant treated wood materials.
- F. Communications and electrical room mounting boards.
- G. Concealed wood blocking, nailers, and supports.
- H. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

- Section 077200 Roof Accessories: Prefabricated roof curbs. Α.
- Β. Section 092116 - Gypsum Board Assemblies-review products: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

- ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Α. Hardware 2016a.
- ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or B. Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- C. ASTM C557 Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing 2003 (Reapproved 2017).
- D. ASTM D2898 Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing 2010 (Reapproved 2017).
- ASTM D3498 Standard Specification for Adhesives for Field-Gluing Wood Structural E. Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing 2019a.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2020.
- G. AWPA U1 Use Category System: User Specification for Treated Wood 2018.
- H. PS 1 Structural Plywood 2009.
- PS 20 American Softwood Lumber Standard 2020. Ι.

1.04 SUBMITTALS

- See Section 013000 Administrative Requirements for submittal procedures. Α.
- Product Data: Provide technical data on wood preservative materials and application B. instructions.
- C. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- General: Cover wood products to protect against moisture. Support stacked products to Α. prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

1.06 WARRANTY

- A. See Section 017800 Closeout Submittals for additional warranty requirements.
- Correct defective work within a -year period commencing on Date of Substantial R Completion.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
 - 2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
 - 3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No.2 or Standard Grade.
 - 2. Boards: Standard or No.3.

2.03 CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: PS 1, A-D plywood, or medium density fiberboard; 3/4 inch (19 mm) thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.
- B. Other Applications:
 - 1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
 - 2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
 - 3. Other Locations: PS 1, C-D Plugged or better.

2.04 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
 - 2. Anchors: Toggle bolt type for anchorage to hollow masonry.
- B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.
 - 1. For contact with preservative treated wood in exposed locations, provide minimum G185 (Z550) galvanizing complying with ASTM A653/A653M.
- C. Construction Adhesives: Adhesives complying with ASTM C557 or ASTM D3498.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
 - 2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Fire Retardant Treatment:
 - 1. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
 - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.

- b. Treat exterior rough carpentry items.
- c. Do not use treated wood in direct contact with ground.
- 2. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature, low hygroscopic type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
 - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
 - b. Interior rough carpentry items are to be fire retardant treated.
 - c. Treat rough carpentry items as indicated.
 - d. Do not use treated wood in applications exposed to weather or where the wood may become wet.

C. Preservative Treatment:

- 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat lumber exposed to weather.
 - c. Treat lumber in contact with roofing, flashing, or waterproofing.
 - d. Treat lumber in contact with masonry or concrete.
 - e. Treat lumber less than 18 inches (450 mm) above grade.
 - f. Treat lumber in other locations as indicated.
- 2. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F.
 - a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
 - b. Treat plywood in contact with roofing, flashing, or waterproofing.
 - c. Treat plywood in contact with masonry or concrete.
 - d. Treat plywood less than 18 inches (450 mm) above grade.
 - e. Treat plywood in other locations as indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- D. Provide the following specific nonstructural framing and blocking:
 - 1. Cabinets and shelf supports.
 - 2. Wall brackets.
 - 3. Handrails.
 - 4. Grab bars.
 - 5. Towel and bath accessories.
 - 6. Wall-mounted door stops.
 - 7. Chalkboards and marker boards.

8. Wall paneling and trim.

3.04 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.05 INSTALLATION OF CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches (610 mm) on center on edges and into studs in field of board.
 - 1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
 - 2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
 - 3. Install adjacent boards without gaps.
 - 4. Size and Location: As indicated on drawings.

3.06 CLEANING

- A. Waste Disposal: See Section 017419 Construction Waste Management and Disposal.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

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SECTION 064023 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Plastic-laminate countertops and supports.
 - 2. Solid Surface countertops.
- B. Related Sections include the following:
 - 1. Division 06 Section "Miscellaneous Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.
 - 2. Division 12 Section "Premanufactured Plastic Laminate Casework" for cabinets.

1.2 **DEFINITIONS**

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.3 SUBMITTALS

- A. Product Data: For panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, solid-surfacing material, cabinet hardware and accessories, handrail brackets, and finishing materials and processes.
 - 1. Include data for fire-retardant materials and treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 2. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers and other items installed in architectural woodwork.
- C. Samples for Verification:
 - 1. Lumber with or for transparent finish, not less than 1-1/2 inches wide by 4 inches long, for each species and cut, finished on 1 side and 1 edge.
 - 2. Plastic laminates, 2 by 3 inches, for each type, color, pattern, and surface finish.
 - 3. Solid-surfacing materials, 2 by 3 inches square.
- D. Product Certificates: For each type of product, signed by product manufacturer.
- E. Qualification Data: For fabricator.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Installer Qualifications: Fabricator of products.

- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers.
- D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
- E. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.6 **PROJECT CONDITIONS**

- A. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
 - 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Products: Comply with the following:

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- 1. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
- 2. Particleboard: ANSI A208.1, Grade M-2.
- 3. Softwood Plywood: DOC PS 1, Medium Density Overlay.
- C. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
 - 1. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with exposed or semiexposed edges.
- D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
 - 1. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide the products listed on the Interiors drawings in the "Finish Schedule" or Approved Equal.
- E. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 - 1. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide the products listed on the Interiors drawings in the "Finish Schedule" or Approved Equal.

2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this Article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified.
 - 1. Do not use treated materials that do not comply with requirements of referenced woodworking standard or that are warped, discolored, or otherwise defective.
 - 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
 - 3. Identify fire-retardant-treated materials with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Use the following treatment type:
 - 1. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking plant certified by testing and inspecting agency.
 - 2. Kiln-dry materials before and after treatment to levels required for untreated materials.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. Grommets for Cable Passage through Countertops: 2-inch OD, grey, molded-plastic grommets and matching plastic caps with slot for wire passage.
- B. Work Surface Supports
 - 1. Manufacturer: Doug Mockett and Company
 - 2. Model: SWS4

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- 3. Product Large Basic Work surface Support
- 4. Capacity: 400lbs per pair
- 5. Color: Grey (92)
- C. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Brass, Blackened, Bright Relieved, Clear Coated: BHMA 610 for brass base; BHMA 636 for steel base.
 - 2. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
 - 3. Satin Stainless Steel: BHMA 630.
- D. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Wood Glues: 30 g/L.
 - 2. Contact Adhesive: 250 g/L.
- E. Adhesive for Bonding Plastic Laminate: Contact cement.1. Use unpigmented contact cement with through-color laminate.

2.5 FABRICATION, GENERAL

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- B. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- C. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- D. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.

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2.6 PLASTIC-LAMINATE COUNTERTOPS

- A. Grade: Custom.
- B. High-Pressure Decorative Laminate Grade: HGS.
- Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 As indicated by manufacturer's designations.
- D. Edge Treatment: PVC edge banding,0.12 inch thick, matching laminate in color, pattern, and finish.
- E. Core Material: Particleboard made with exterior glue.
- F. Paper Backing: Provide paper backing on underside of countertop substrate.

2.7 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Grade: Custom.
- B. Solid-Surfacing-Material Thickness: 1/2 inch.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
 - 1. As indicated by manufacturer's designations.
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacingmaterial manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate tops with shop-applied edges of materials and configuration indicated.
 - 2. Fabricate tops with shop-applied backsplashes.

PART 3 - EXECUTION

3.1 **PREPARATION**

A. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

- A. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.
- C. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening,

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countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

- F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 4. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

SECTION 071113 BITUMINOUS DAMPPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Bituminous dampproofing.
- B. Protection boards.

1.02 RELATED REQUIREMENTS

- A. Section 072100 Thermal Insulation : Rigid insulation board used as protection board.
- B. Section 312323 Fill.
- C. Section 334100 Subdrainage.

1.03 REFERENCE STANDARDS

- A. ASTM D1187/D1187M Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal 1997 (Reapproved 2018).
- B. ASTM D1227/D1227M Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing 2019.
- C. NRCA (WM) The NRCA Waterproofing Manual 2005.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide properties of primer, bitumen, and mastics.
- C. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with at least three years of documented experience.

1.06 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application until dampproofing has cured.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Other Acceptable Bituminous Dampproofing Manufacturers:
 - 1. Karnak Corporation: www.karnakcorp.com/#sle.
 - 2. W. R. Meadows, Inc: www.wrmeadows.com/#sle.
 - 3. BASF Corporation
 - 4. Henry Company
 - 5. Substitutions: See Section 016000 Product Requirements.

2.02 BITUMINOUS DAMPPROOFING

- A. Bituminous Dampproofing: Cold-applied water-based emulsion; asphalt with mineral colloid or chemical emulsifying agent; with or without fiber reinforcement; asbestos-free; suitable for application on vertical and horizontal surfaces.
 - 1. Composition Vertical Application: ASTM D1227/D1227M Type III or ASTM D1187/D1187M Type I.
 - Composition Horizontal and Low-Slope Application: ASTM D1227/D1227M Type II or III.
 - 3. VOC Content: Not more than permitted by local, State, and federal regulations.
 - 4. Applied Thickness: 1/16 inch, minimum, wet film.
 - 5. Products:
 - a. W. R. Meadows, Inc; Sealmastic Emulsion Type I (spray-grade): Basis-of-Design www.wrmeadows.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.

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B. Primers, Mastics, and Related Materials: Type as recommended by dampproofing manufacturer.

2.03 BITUMEN MATERIALS

2.04 ACCESSORIES

A. Protection Board: Rigid insulation specified in Section 072100.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions are acceptable prior to starting this work.
- B. Verify substrate surfaces are durable, free of matter detrimental to adhesion or application of dampproofing system.
- C. Verify that items penetrating surfaces to receive dampproofing are securely installed.

3.02 PREPARATION

- A. Protect adjacent surfaces not designated to receive dampproofing.
- B. Clean and prepare surfaces to receive dampproofing in accordance with manufacturer's instructions.
- C. Do not apply dampproofing to surfaces unacceptable to manufacturer.
- D. Apply mastic to seal penetrations, small cracks, or minor honeycombs in substrate.

3.03 APPLICATION

- A. Foundation Walls: Apply two coats of asphalt dampproofing.
- B. Perform this work in accordance with manufacturer's instructions and NRCA (WM) applicable requirements.
- C. Prime surfaces in accordance with manufacturer's instructions and NRCA (WM) applicable requirements.
- D. Prime surfaces at a rate approved by manufacturer for application indicated, and allow primer to dry thoroughly.
- E. Apply bitumen per manufacturer's instructions.
- F. Apply bitumen at a temperature limited by equiviscous temperature (EVT) plus or minus 25 degrees F; do not exceed finish blowing temperature for four hours.
- G. Apply bitumen in one coat, continuous and uniform, at a rate of 25 sq ft/gal per coat.
- H. Apply from 2 inches below finish grade elevation down to top of footings.
- I. Seal items watertight with mastic, that project through dampproofing surface.
- J. Place protection board directly over dampproofing, butt joints, and adhere to tacky dampproofing.
- K. Scribe and cut boards around projections, penetrations, and interruptions.

SECTION 072100 THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board insulation at cavity wall construction, perimeter foundation wall, underside of floor slabs, and exterior wall.
- B. Batt insulation and vapor retarder in exterior wall construction.
- C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 RELATED REQUIREMENTS

A. Section 072500 - Weather Barriers: Separate air barrier and vapor retarder materials.

1.03 REFERENCE STANDARDS

- A. ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2019.
- B. ASTM C665 Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2017.
- C. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- D. ASTM E136 Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C 2019a.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. ABAA Field Quality Control Submittals: Submit third-party reports of testing and inspection required by ABAA QAP.
- D. ABAA Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.
- E. ABAA Installer Qualification: Submit documentation of current contractor accreditation and current installer certification. Keep copies of contractor accreditation and installer certification on project site during and after installation. Present on-site documentation upon request.

1.05 QUALITY ASSURANCE

- A. Air Barrier Association of America (ABAA) Quality Assurance Program (QAP); www.airbarrier.org/#sle:
 - 1. Installer Qualification: Use accredited contractors, certified installers, evaluated materials, and third-party field quality control audit.
 - 2. Manufacturer Qualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture. Use secondary materials approved in writing by primary material manufacturer.

1.06 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS

- A. Insulation Under Concrete Slabs: Extruded polystyrene (XPS) board.
- B. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.
- C. Insulation Inside Masonry Cavity Walls: Extruded polystyrene (XPS) carbon black board.
- D. Insulation in Metal Framed Walls: Batt insulation with separate vapor retarder.

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2.02 FOAM BOARD INSULATION MATERIALS

- A. Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.
 - 1. Type and Compressive Resistance: Type IV, 25 psi (173 kPa), minimum.
 - 2. Flame Spread Index (FSI): Class A 0 to 25, when tested in accordance with ASTM E84.
 - 3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 - 4. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.
 - 5. Board Edges: Square.
 - 6. Type and Water Absorption: Type IV, 0.3 percent by volume, maximum, by total immersion.
 - 7. Products:
 - a. DuPont de Nemours, Inc; Styrofoam Brand Square Edge: building.dupont.com/#sle.
 - b. Kingspan Insulation LLC; GreenGuard XPS Type IV, 25 psi: www.kingspan.com/#sle.
 - c. Owens Corning Corporation; FOAMULAR Extruded Polystyrene (XPS) Insulation: www.ocbuildingspec.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
 - 8. Flame Spread Index (FSI): Class A 0 to 25, when tested in accordance with ASTM E84.
 - 9. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 - 10. Board Size: 48 inch by 96 inch.
 - 11. Board Thickness: 2 inch.
 - 12. Board Edges: square, at long edges.
- B. Extruded Polystyrene (XPS) Cavity Wall Insulation Board: Complies with ASTM C578, and manufactured using carbon black technology.
 - 1. Type and Compressive Resistance: Type IV, 25 psi (173 kPa), minimum.
 - 2. Flame Spread Index (FSI): Class A 0 to 25, when tested in accordance with ASTM E84.
 - 3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 - 4. Type and Thermal Resistance, R-value: Type IV, 5.6 (0.98), minimum, per 1 inch thickness at 75 degrees F mean temperature.
 - 5. Board Size: 15-3/4 inch by 96 inch.
 - 6. Board Thickness: 2-3/16 inch.
 - 7. Board Edges: Square.
 - 8. Type and Water Absorption: Type IV, 0.3 percent by volume, maximum, by total immersion.
 - 9. Products:

b.

- a. DuPont de Nemours, Inc; Styrofoam Brand Cavitymate Ultra: building.dupont.com/#sle.
 - Approved Equal.

2.03 BATT INSULATION MATERIALS

- A. Where batt insulation is indicated, either glass fiber or mineral fiber batt insulation may be used, at Contractor's option.
- B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
 - 1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
 - 3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
 - 4. Formaldehyde Content: Zero.

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- 5. Thermal Resistance: R-value R-19 at exterior walls, R-30 at Roofs.
- 6. Thickness: As indicated on drawings .
- 7. Products:
 - a. CertainTeed Corporation; [____]: www.certainteed.com/#sle.
 - b. Johns Manville; [____]: www.jm.com/#sle.
 - c. Owens Corning Corporation; EcoTouch PINK FIBERGLAS Insulation: www.ocbuildingspec.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- C. Mineral Fiber Batt Insulation: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
 - 1. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.

2.04 ACCESSORIES

- A. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
- B. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

- A. Apply adhesive to back of boards:
 - 1. Full bed 1/8 inch thick.
- B. Install boards horizontally and vertically on foundation perimeter.
 - 1. Place boards to maximize adhesive contact.
 - 2. Install in running bond pattern.
 - 3. Butt edges and ends tightly to adjacent boards and to protrusions.
- C. Extend boards over expansion joints, unbonded to foundation on one side of joint.
- D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 BOARD INSTALLATION AT CAVITY WALLS

- A. Secure impale fasteners to substrate at following frequency:
 - 1. Eight (8) minimum per insulation board. Follow manufacturer's instructions.
- B. Adhere a 6 inches wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.
 - 1. Tape seal joints between sheets.
 - 2. Extend sheet full height of joint.
- C. Apply adhesive to back of boards per manufacturer's instructions.
- D. Install boards to fit snugly between wall ties.
 - 1. Place membrane surface facing out, and tape seal board joints.
- E. Install boards horizontally on walls.
 - 1. Place boards to maximize adhesive contact.
 - 2. Install in running bond pattern.
 - 3. Butt edges and ends tightly to adjacent boards and protrusions.
 - 4. Place impale fastener locking discs.
- F. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.04 BOARD INSTALLATION UNDER CONCRETE SLABS

A. Place insulation under slabs on grade after base for slab has been compacted.

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- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- C. Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab.

3.05 BATT INSTALLATION

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. Retain insulation batts in place with spindle fasteners at 12 inches on center.
- F. At metal framing, place vapor retarder on cold side of insulation; lap and seal sheet retarder joints over face of member
- G. Tape seal tears or cuts in vapor retarder.
- H. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.
- I. Coordinate work of this section with requirements for vapor retarder, see Section 072500.
- J. Coordinate work of this section with construction of air barrier seal, see Section 072500.

3.06 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

SECTION 072500 WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, and joints around frames of openings in exterior walls.

1.02 RELATED REQUIREMENTS

A. Section 075300 - Elastomeric Membrane Roofing: Vapor retarder installed as part of roofing system.

1.03 DEFINITIONS

- A. Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.
- B. Air Barrier: Air tight barrier made of material that is relatively air impermeable but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces. Note: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.
- C. Vapor Retarder: Air tight barrier made of material that is relatively water vapor impermeable, to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.
 - 1. Water Vapor Permeance: For purposes of conversion, 57.2 ng/(Pa s sq m) = 1 perm.
- D. Water-Resistive Barrier: Water-shedding barrier made of material that is moisture resistant, to the degree specified, intended to be installed to shed water without sealed seams.

1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.
- B. ASTM E96/E96M Standard Test Methods for Water Vapor Transmission of Materials 2016.
- C. ASTM E2178 Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials 2021a.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on material characteristics.
- C. Shop Drawings: Provide drawings of special joint conditions.
- D. ABAA Field Quality Control Submittals: Submit third-party reports of testing and inspection required by ABAA QAP.
- E. Manufacturer's Installation Instructions: Indicate preparation.
- F. ABAA Installer Qualification: Submit documentation of current contractor accreditation and current installer certification; keep copies of each contractor accreditation and installer certification on site during and after installation, and present on-site documentation upon request.
- G. Testing Agency Qualification Statement.

1.06 QUALITY ASSURANCE

1.07 MOCK-UP

A. Install air barrier materials in mock-up demonstrating installation at joints in sheathing and with openings. Do not proceed with installation without architect's approval of mock-up installation.

1.08 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

- A. Air Barrier:
 - 1. On outside surface of inside wythe of exterior masonry cavity walls use air barrier coating, fluid applied type.
 - 2. On outside surface of sheathing of exterior walls use air barrier membrane, fluid applied type.

2.02 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

- A. Air Barrier, Fluid Applied: Vapor permeable, elastomeric waterproofing.
 - 1. Air Barrier Coating:
 - a. Air Permeance: 0.004 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
 - b. Water Vapor Permeance: 5 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure B (Water Method) at 73.4 degrees F.
 - 2. Air Barrier Membrane:
 - a. Air Permeance: 0.004 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
 - b. Water Vapor Permeance: 5 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure B (Water Method) at 73.4 degrees F.

2.03 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)

- A. Vapor Retarder Coating: Liquid applied, resilient, UV-resistant coating and associated joint treatment.
 - 1. Dry Film Thickness (DFT): 35 mils, [___] inch, minimum.
 - 2. Water Vapor Permeance: 10 perm, minimum, when tested in accordance with ASTM E96/E96M.
 - 3. Air Barrier Assembly Air Leakage Maximum: 0.04 cfm/sq ft of surface area at 1.57 lbf/sq ft, when tested according to ASTM E2357.
 - 4. VOC Content: Less than 50 g per L when tested in accordance with 40 CFR 59, Subpart D (EPA Method 24).
 - 5. Suitable for use on concrete, masonry, plywood and gypsum sheathing.
 - 6. Joint Preparation Treatment: Coating manufacturer's recommended method, either tape or reinforcing mesh saturated with coating material.
 - 7. Manufacturers:
 - a. Henry Company; Air-Bloc 16MR: www.henry.com/#sle.
 - b. W.R. Meadows, Inc; Air-Shield LM or Air-Shield LM (All Season): www.wrmeadows.com/#sle.
 - 8. Joint Filler: As recommended by coating manufacturer and suitable to the substrate.

2.04 ACCESSORIES

- A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.
- B. Sealant for Cracks and Joints In Substrates: Resilient elastomeric joint sealant compatible with substrates and waterproofing materials.
 - 1. Application: Apply at 30 to 40 mil, 0.030 to 0.40 inch nominal thickness.
 - 2. Color: Green.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
- B. Clean and prime substrate surfaces to receive adhesives and sealants in accordance with manufacturer's instructions.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- C. Vapor Retarders: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- D. Coatings:
 - 1. Prepare substrate in manner recommended by coating manufacturer; treat joints in substrate and between dissimilar materials as recommended by manufacturer.
 - 2. Where exterior masonry veneer is to be installed, install masonry anchors before installing weather barrier over masonry; seal around anchors air tight.
 - 3. Use flashing to seal to adjacent construction and to bridge joints.
- E. Openings and Penetrations in Exterior Weather Barriers:
 - 1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
 - 2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
 - 3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
 - 4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
 - 5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
 - 6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 Quality Requirements for additional requirements.
- B. Coordination of ABAA Tests and Inspections:
 - 1. Provide testing and inspection required by ABAA QAP.
 - 2. Notify ABAA in writing of schedule for air barrier work, and allow adequate time for testing and inspection.
 - 3. Cooperate with ABAA testing agency.
 - 4. Allow access to air barrier work areas and staging.
 - 5. Do not cover air barrier work until tested, inspected, and accepted.
- C. Obtain approval of installation procedures by the weather barrier manufacturer based on a mock-up installed in place, prior to proceeding with remainder of installation.
- D. Take digital photographs of each portion of the installation prior to covering up.

3.05 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

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SECTION 075323 EPDM THERMOSET SINGLE-PLY ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Adhered roof system with ethylene propylene diene monomer (EPDM) roofing membrane.
- B. Cover Board
- C. Insulation, flat and tapered.
- D. Substrate Board
- E. Vapor retarder.
- F. Flashings.
- G. Roofing cant strips, stack boots, roofing expansion joints, and walkway pads.

1.02 RELATED REQUIREMENTS

- A. Section 070150.19 Preparation for Re-Roofing.
- B. Section 076200 Sheet Metal Flashing and Trim: Counterflashing and reglets.
- C. Section 077100 Roof Specialties: Prefabricated roofing expansion joint flashing.
- D. Section 077200 Roof Accessories: Roof-mounted units; prefabricated curbs.
- E. Section 221006 Plumbing Piping Specialties: Roof drains, sumps, and hoppers.

1.03 REFERENCE STANDARDS

- A. ASCE 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
- B. ASTM C1177/C1177M Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing 2017.
- C. ASTM C1289 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2021.
- D. ASTM C1325 Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units 2021.
- E. ASTM C1396/C1396M Standard Specification for Gypsum Board 2017.
- F. ASTM D4637/D4637M Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane 2015.
- G. ASTM E1980 Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces 2011 (Reapproved 2019).
- H. FM DS 1-28 Wind Design 2016.
- I. NRCA (RM) The NRCA Roofing Manual 2019.
- J. UL 790 Standard for Standard Test Methods for Fire Tests of Roof Coverings Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.
 - 1. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's written information listed below.
 - 1. Product data indicating membrane materials, deck sheathing and cover board, flashing materials, insulation, vapor retarder, surfacing, and fasteners.
 - 2. Storage and handling requirements.

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- C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and paver layout.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and other supplementary instructions.
- F. Specimen Warranty: For approval.
- G. Warranty:
 - 1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
 - 2. Submit installer's certification that installation complies with all warranty conditions for the waterproof membrane.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five (5) years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this section:
 - 1. With minimum five years documented experience.
 - 2. Approved by membrane manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Protect products in weather protected environment, clear of ground and moisture.
- C. Protect foam insulation from direct exposure to sunlight.
- D. Keep Safety Data Sheets (SDS) at the project site at all times during transportation, storage, and installation of materials.
- E. Comply with requirements from Owner to prevent overloading or disturbance of the structure when loading materials onto the roof.

1.08 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather. Refer to manufacturer's written instructions.
- B. Do not apply roofing membrane when ambient temperature is below or above manufacturer's recommended temperature range .
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- E. Proceed with work so new roofing materials are not subject to construction traffic as work progresses.
- F. Do not allow grease, oil, fats, or other contaminants to come into direct contact with membrane.

1.09 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Material Warranty: Provide membrane manufacturer's warranty agreeing to replace material that shows manufacturing defects within 10 years after installation.
- C. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
 - 1. Warranty Term: 30 years.
 - 2. For repair and replacement include costs of both material and labor in warranty.
 - 3. Exceptions NOT Permitted:
 - a. Damage due to roof traffic.

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b. Damage due to wind of speed greater than 56 mph but less than 90 mph.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Carlisle SynTec: www.carlisle-syntec.com/#sle.
- B. Substitutions: See Section 016000 Product Requirements.

2.02 ROOFING APPLICATIONS

- A. EPDM Membrane Roofing: One ply membrane, fully adhered, over insulation.
- B. Roofing Assembly Performance Requirements and Design Criteria:
 - 1. Solar Reflectance Index (SRI): Minimum of 64 based on three-year aged value; if three-year aged data is not available, .
 - a. Calculate SRI in accordance with ASTM E1980.
 - b. Field applied coating may not be used to achieve specified SRI.
 - 2. Roof Covering External Fire Resistance Classification: Class A when tested per UL 790.
 - 3. Wind Uplift:
 - a. Designed to withstand wind uplift forces calculated with ASCE 7.
 - b. Design Wind Speed: As indicated on drawings.
 - 4. Insulation Thermal Resistance (R-Value): Provide R-30, minimum, over entire roof deck.
 - 5. Drainage: No standing water within 48 hours after precipitation.

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Single Source Responsibility: Provide and install products from single source.
- B. Membrane:
 - 1. Material: Ethylene propylene diene monomer (EPDM); ASTM D4637/D4637M, Type II (internally reinforced with fabric or scrim).
 - 2. Thickness: 90 mil, 0.090 inch, minimum.
 - 3. Sheet Width: Factory fabricated into largest sheets possible.
 - 4. Color: Black.
 - 5. Product:
 - a. Carlisle Sure-Seal.
- C. Seaming Materials: As recommended by membrane manufacturer.
- D. Membrane Fasteners: As recommended and approved by membrane manufacturer.
 1. HP Term Bar Nail-In: 1-1/4 inch long expansion anchor with threaded drive pin.
- E. Vapor Retarder: Material approved by roof manufacturer complying with requirements of fire rating classification; compatible with roofing and insulation materials.
 - 1. Fire-retardant adhesive.
- F. Flexible Flashing Material: Same material as membrane.
- G. Base Flashing: Provide waterproof, fully adhered base flashing system at all penetrations, plane transitions, and terminations.

2.04 DECK SHEATHING AND COVER BOARDS

- A. Deck Sheathing: Gypsum sheathing, ASTM C1396/C1396M, Type X special fire resistant type, paper face, 1/2 inch thick.
 - 1. Product:
 - a. Securock, distributed by Carlisle.
- B. Cover Board: Glass mat faced gypsum panels, ASTM C1177/C1177M, fire resistant type, 5/8 inch thick.
 - 1. Product:
 - a. GP Dens-Deck Prime, distributed by Carlisle.
- C. Coverboard: Cement roof board, complying with ASTM C1325.

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2.05 INSULATION

- A. Polyisocyanurate (ISO) Board Insulation: ASTM C1289, Type II, Class 1 Faced with glass fiber reinforced cellulosic felt facers on both major surfaces of the core foam; Grade 1.
 - 1. Compressive Strength: 16 psi.
 - 2. Product:
 - a. Carlisle Securshield.
 - 3. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope 1/8" per 12 inches unless otherwise indicated.

2.06 ACCESSORIES

- A. Roofing Expansion Joint Flashing: Sheet butyl.
- B. Prefabricated Flashing Accessories:
 - 1. Corners and Seams: Same material as membrane, in manufacturer's standard thicknesses.
 - Carlisle; Sure-Seal (black) Pressure-Sensitive Inside/Outside Corner: 60 mil, 0.060 inch thick, 7 by 9 inches precut, uncured EPDM with 35 mil, 0.035 inch factory-applied tape.
 - b. Carlisle; Sure-Seal Pressure-Sensitive Curb Flashing: 60 mil, 0.060 inch thick, 20 inches wide, cured EPDM with 35 mil, 0.035 inch thick, 5 inches wide factory-applied tape along one edge.
 - c. Carlisle; Sure-Seal Pressure-Sensitive Overlayment Strip: 40 mil, 0.040 inch thick, semi-cured EPDM laminated to 35 mil, 0.035 inch factory-applied tape.
 - d. Carlisle; Sure-Seal Pressure-Sensitive T-Joint Covers: 40 mil, 0.040 inch thick, uncured EPDM laminated to 35 mil, 0.035 inch factory-applied tape.
 - e. Carlisle; Sure-Seal Elastoform Flashing: 60 mils, 0.060 inch thick, uncured EPDM membrane.
 - 2. Penetrations: Same material as membrane, with manufacturer's standard cut-outs, rigid inserts, clamping rings, and flanges.
 - a. Carlisle; Sure-Seal Pressure-Sensitive Pipe Seals; with factory-applied tape on deck flange.
 - 3. Sealant Pockets: Same material as membrane, with manufacturer's standard accessories, in manufacturer's standard configuration.
 - a. Carlisle; Sure-Seal Pourable Sealant Pocket: 2 inches wide plastic support strip with factory-applied, adhesive-backed uncured EPDM flashing.
 - 4. Sure-Seal Pressure-Sensitive Reinforced Universal Securement Strip (RUSS):
 - a. 6 inches wide, 45 mils, 0.045 inch thick, reinforced EPDM membrane with 3 inches wide, 30 mils, 0.030 inch thick cured synthetic rubber with pressure-sensitive adhesive laminated to one edge.
- C. Insulation Adhesive: Two component polyurethane, expanding foam.
 - 1. Product:
 - a. Carlisle FAST 100.
- D. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.
- E. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
 - 1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
 - 2. HP Fastener: Threaded, E-coat, square head fastener for insulation attachment to steel, wood plank, plywood or oriented strand board decks.
- F. Membrane Adhesive: As recommended by membrane manufacturer.
 - 1. Sure-Seal SecurTAPE: 3-inch or 6-inch wide splice tape.
 - 2. Splicing Cement: Butyl-based contact cement.
 - 3. EPDM x 23 Low-VOC Bonding Adhesive.
- G. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
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- H. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
- I. Sealants: As recommended by membrane manufacturer.
- J. Cleaner: Manufacturer's standard, clear, solvent-based cleaner.
- K. Primer: Manufacturer's recommended product.
- L. Edgings and Terminations: Manufacturer's standard edge and termination accessories.
- M. Pavers: Factory formed, nonporous, heavy-duty, solid rubber, slip-resisting, surfacetextured walkway pads or rolls, approximately 3/16" thick and acceptable to the roofing manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 PREPARATION, GENERAL

- A. Clean substrate thoroughly prior to roof application.
- B. Do not begin work until other work that requires foot or equipment traffic on roof is complete.
- C. Apply manufacturer's recommended vapor retarder or temporary roof before roof installation.

3.03 METAL DECK PREPARATION

- A. Install deck sheathing on metal deck:
 - 1. Lay with long side at right angle to flutes; stagger end joints; provide support at ends.
 - 2. Cut sheathing cleanly and accurately at roof breaks and protrusions to provide smooth surface.
 - 3. Tape joints.
- B. Mechanically fasten sheathing to roof deck, in accordance with Factory Mutual FM DS 1-28 recommendations and roofing manufacturer's instructions.
 - 1. Over entire roof area, fasten sheathing using six fasteners with washers per sheathing board.

3.04 INSTALLATION - GENERAL

- A. Perform work in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
- B. Do not apply roofing membrane during unsuitable weather.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- F. Coordinate the work with installation of associated counterflashings installed by other sections as the work of this section proceeds.
- G. When substrate preparation is responsibility of another installer, notify Architect of unsatisfactory conditions before proceeding.

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3.05 INSULATION APPLICATION

- A. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
 - 1. Extend vapor retarder under cant strips and blocking to deck edge.
 - 2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.
- C. Attachment of Insulation: Embed insulation in adhesive in full contact, in accordance with roofing and insulation manufacturer's instructions.
- D. Lay subsequent layers of insulation with joints staggered minimum 6 inches from joints of preceding layer.
- E. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- F. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.
- G. Lay boards with edges in moderate contact without forcing, and gap between boards no greater than 1/4 inch. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- H. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
- I. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches.
- J. Do not apply more insulation than can be completely waterproofed in the same day.

3.06 MEMBRANE APPLICATION

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Fully Adhered Application: Apply adhesive at manufacturer's recommended rate. Fully embed membrane in adhesive except in areas directly over or within 3 inches of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.
- D. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof.
- E. At intersections with vertical surfaces:
 - 1. Extend membrane over cant strips and up a minimum of 4 inches onto vertical surfaces.
 - 2. Fully adhere flexible flashing over membrane and up to reglets.
 - 3. Insert flashing into reglets and secure.
- F. At gravel stops, extend membrane under gravel stop and to the outside face of the wall.
- G. Install roofing expansion joints where indicated, and ensure joints are watertight.
- H. Coordinate installation of roof drains and sumps and related flashings, locate field splices away from low areas and roof drains, and lap upslope sheet over downslope sheet.
- I. Install walkway pads at areas of concentrated traffic as indicated on drawings, and space pad joints to permit drainage.
- J. Daily Seal: Install daily seal per manufacturers instructions at the end of each work day. Prevent infiltration of water at incomplete flashings, terminations, and at unfinished membrane edges.

3.07 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for general requirements for field quality control and inspection.

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B. Require site attendance of roofing material manufacturers daily during installation of this work.

3.08 CLEANING

- A. See Section 017419 Construction Waste Management and Disposal, for additional requirements.
- B. Remove wrappings, empty containers, paper, and other debris from the roof daily. Dispose of debris in compliance with local, State, and Federal regulations.
- C. Remove bituminous markings from finished surfaces.
- D. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- E. Repair or replace defaced or damaged finishes caused by work of this section.

3.09 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

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SECTION 076200 SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, exterior penetrations, other items not specified elsewhere., and other items indicated in Schedule.
- B. Sealants for joints within sheet metal fabrications.

1.02 RELATED REQUIREMENTS

- A. Section 042000 Unit Masonry: Metal flashings embedded in masonry.
- B. Section 077100 Roof Specialties: Manufactured flashings,.
- C. Section 077200 Roof Accessories: Manufactured metal roof curbs.
- D. Section 079200 Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.03 REFERENCE STANDARDS

- A. AAMA 2603 Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- B. AAMA 2604 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- C. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- D. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- E. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.
- F. ASTM B101 Standard Specification for Lead-Coated Copper Sheet and Strip for Building Construction 2012 (Reapproved 2019).
- G. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.
- H. ASTM B209M Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) 2014.
- I. ASTM B370 Standard Specification for Copper Sheet and Strip for Building Construction 2012 (Reapproved 2019).
- J. ASTM B749 Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products 2020.
- K. ASTM C920 Standard Specification for Elastomeric Joint Sealants 2018.
- L. ASTM D226/D226M Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing 2017.
- M. ASTM D4586/D4586M Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).
- N. CDA A4050 Copper in Architecture Handbook current edition.
- O. SMACNA (ASMM) Architectural Sheet Metal Manual 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Samples: Submit two samples charts illustrating metal finish color selection.
- D. Samples for Verification: Submit six samples minimum 2"x3' of actual materials .when requested by architect.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 3 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Sheet Metal Flashing and Trim Manufacturers:
 - 1. OMG Roofing Products; [____]: www.omgroofing.com/#sle.
 - 2. Petersen Aluminum Corporation; [____]: www.pac-clad.com/#sle.
 - 3. Cheney Flashing.
 - 4. Fry Reglet
 - 5. Substitutions: See Section 016000 Product Requirements.

2.02 SHEET MATERIALS

- A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gauge, (0.0239 inch) thick base metal.
- B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gauge, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
 - 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish,
 - AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 - 2. Color: As selected by Architect from manufacturer's standard colors.
- C. Aluminum: ASTM B209 (ASTM B209M); 20 gauge, 0.032 inch thick; anodized finish of color as selected.
- D. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 20 gauge, 0.032 inch thick; plain finish shop pre-coated with modified silicone coating.
 - 1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
 - 2. Color: As selected by Architect from manufacturer's standard colors.
- E. Lead Sheet: ASTM B749, 0.047 inch minimum thickness; UNS Number L51121.
- F. Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 28 gauge, (0.0156 inch) thick; smooth No. 4 Brushed finish.
- G. Terne Coated Steel: 28 gauge, 0.0149 inch thick copper bearing carbon steel core material with 0.092 lb/sq ft terne alloy coating on both sides of core metal.
- H. Copper: ASTM B370, cold rolled 16 oz/sq ft (24 gauge) (0.0216 inch) thick; natural finish.
- I. Lead Coated Copper: ASTM B101, 24 oz/sq ft weight of bare copper sheet, HOO (cold-rolled) temper.
- J. Terne Coated Stainless Steel: 28 gauge, 0.0156 inch ASTM A666 Type 304 alloy core material with 0.092 lb/sq ft terne alloy coating on both sides of core metal.

2.03 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.

- C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- G. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.04 GUTTER AND DOWNSPOUT FABRICATION

- A. Gutters: SMACNA (ASMM) Rectangular profile.
- B. Downspouts: Rectangular profile.
- C. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM).
- D. Material: Prefinished Aluminum: 20 Ga.
- E. Finsh: Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
- F. Color: Architect to select from Manufacturer's standard range.
- G. Accessories: Profiled to suit gutters and downspouts.
 - 1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
 - 2. Gutter Supports: Brackets.
 - 3. Downspout Supports: Brackets.
- H. Downspout Boots: Steel.
- I. Downspout Extenders: Same material and finish as downspouts.
- J. Seal metal joints.

2.05 ACCESSORIES

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Underlayment: ASTM D226/D226M, organic roofing felt, Type I (No. 15).
- C. Slip Sheet: Rosin sized building paper.
- D. Primer: Zinc chromate type.
- E. Concealed Sealants: Non-curing butyl sealant.
- F. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
 - 1. Manufacturers:
 - a. Franklin International, Inc; Titebond WeatherMaster Metal Roof Sealant: www.titebond.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- G. Plastic Cement: ASTM D4586/D4586M, Type I.
- H. Reglets: Recessed type, galvanized steel; face and ends covered with plastic tape.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels, and seal top of reglets with sealant.

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C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

- A. Comply with drawing details.
- B. Insert flashings into reglets to form tight fit; secure in place with lead wedges; pack remaining spaces with lead wool; seal flashings into reglets with sealant.
- C. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- D. Apply plastic cement compound between metal flashings and felt flashings.
- E. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- F. Seal metal joints watertight.
- G. Secure gutters and downspouts in place with concealed fasteners.
- H. Slope gutters 1/4 inch per 10 feet, minimum.
- I. Connect downspouts to downspout boots, and grout connection watertight.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 Quality Requirements, for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

SECTION 077100 ROOF SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured roof specialties, including copings, gravel stops, and vent pipe penetrations..

1.02 RELATED REQUIREMENTS

A. Section 077200 - Roof Accessories: Manufactured curbs.

1.03 REFERENCE STANDARDS

- A. AAMA 2604 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- B. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- C. ANSI/SPRI/FM 4435/ES-1 Test Standard for Edge Systems Used with Low Slope Roofing Systems 2017.
- D. ASTM D4586/D4586M Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).
- E. NRCA (RM) The NRCA Roofing Manual 2019.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on shape of components, materials and finishes, anchor types and locations.
- C. Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected work.
- D. Samples: Submit two appropriately sized samples showing full range of coping colors for selections.
- E. Manufacturer's Installation Instructions: Indicate special procedures, fasteners, supporting members, and perimeter conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Roof Edge Flashings and Copings:
 - 1. ATAS International, Inc; Rapid-Lok Fascia: www.atas.com/#sle.
 - 2. Drexel Metals Inc; Fascia: www.drexmet.com/#sle.
 - 3. Metal-Era Inc; [____]: www.metalera.com/#sle.
 - 4. Metal Roofing Systems, Inc; Rapid Lock Coping: www.metalroofingsystems.biz/#sle.
 - 5. Substitutions: See Section 016000 Product Requirements.
- B. Louvered Vents:
- C. Pipe and Penetration Flashings:
 - 1. Elmdor Stonemen: www.elmdorstoneman.com/#sle.
 - 2. Portals Plus: www.portalsplus.com/#sle.
 - 3. Substitutions: See Section 016000 Product Requirements.
- D. Counterflashings:
 - 1. ATAS International, Inc: www.atas.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- E. Vapor Barriers:
 - 1. Construction Specialties, Inc; Vapor Barriers: www.c-sgroup.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- F. Roof Vents:
 - 1. Construction Specialties, Inc; Roof Vents: www.c-sgroup.com/#sle.

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2. Substitutions: See Section 016000 - Product Requirements.

2.02 COMPONENTS

- A. Roof Edge Flashings: Factory fabricated to sizes required; corners mitered; concealed fasteners.
 - 1. Configuration: Fascia, cant, and edge securement for roof membrane.
 - Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test methods RE-1 and RE-2 to positive and negative design wind pressure as defined by New York State Building Code
 - 3. Exposed Face Height: As indicated on drawings.
 - 4. Material: Extruded aluminum, 0.08 inch thick, minimum.
 - 5. Finish: 70 percent polyvinylidene fluoride.
 - 6. Color: To be selected by Architect from manufacturer's standard range.
 - 7. Manufacturers:
 - a. OMG Roofing Products; TerminEdge Fascia: www.omgroofing.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- B. Copings: Factory fabricated to sizes required; corners mitered; concealed fasteners.
 - 1. Configuration: Concealed continuous hold down cleat at both legs; internal splice piece at joints of same material, thickness, and finish as cap; concealed stainless steel fasteners.
 - 2. Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test method RE-3 to positive and negative design wind pressure as defined by New York State Building Code.
 - 3. Wall Width: As indicated on drawings.
 - 4. Outside Face Height: As indicated on drawings.
 - 5. Inside Face Height: As indicated on drawings.
 - 6. Material: Formed aluminum sheet, 0.040 inch thick, minimum.
 - 7. Finish: 70 percent polyvinylidene fluoride.
 - 8. Color: To be selected by Architect from manufacturer's standard range.
 - 9. Manufacturers:
 - a. Metal-Era Inc; [____]: www.metalera.com/#sle.
 - b. OMG Roofing Products; Formed Coping Plus: www.omgroofing.com/#sle.
 - c. Substitutions: See Section 016000 Product Requirements.
- C. Pipe and Penetration Flashing: Base of rounded aluminum, compatible with sheet metal roof systems, and capable of accomodating pipes sized between 3/8 inch and 12 inch.
 - 1. Caps: EPDM.
 - 2. Color: Manufacturer's Standard.
- D. Roof Penetration Sealing Systems: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for conduits and roofing system to be installed; designed to accommodate existing penetrations where applicable.
- E. Counterflashing:
 - 1. Counterflashings: Factory fabricated and finished sheet metal that overlaps top edges of base flashing by at least 4 inches, and designed to snap into thru-wall flashing or reglets with lapped joints.
 - a. Material: Zinc-coated steel sheet, 0.022 inch thick, minimum.
 - b. Finish: Mill finish aluminum.

2.03 FINISHES

- A. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; color as indicated.
- B. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system; color as selected from manufacturer's standard colors.

2.04 ACCESSORIES

A. Sealant for Joints in Linear Components: As recommended by component manufacturer.

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- B. Adhesive for Anchoring to Roof Membrane: Compatible with roof membrane and approved by roof membrane manufacturer.
- C. Insulation Board Adhesive: Two-component, low-rise polyurethane foam adhesive used for adhering insulation to low slope roof deck materials. Compatible with roof membrane and approved by roof membrane manufacturer.
 - 1. Manufacturers:
 - a. OMG Roofing Products; OlyBond500: www.roofing.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- D. Roof Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that deck, curbs, roof membrane, base flashing, and other items affecting work of this Section are in place and positioned correctly.
 - 1. Refer to Section 077200 for information on roofing related accessories.

3.02 INSTALLATION

- A. Install components in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
- B. Seal joints within components when required by component manufacturer.
- C. Anchor components securely.
- D. Coordinate installation of components of this section with installation of roofing membrane and base flashings.
- E. Coordinate installation of sealants and roofing cement with work of this section to ensure water tightness.
- F. Coordinate installation of flashing flanges into reglets.

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SECTION 077200 ROOF ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Curbs.
- B. Roof penetrations mounting curbs.

1.02 RELATED REQUIREMENTS

- A. Section 053100 Steel Decking.
- B. Section 076200 Sheet Metal Flashing and Trim: Roof accessory items fabricated from sheet metal.
- C. Section 077100 Roof Specialties: Other manufactured roof items.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used.
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Maintenance requirements.
- C. Shop Drawings: Submit detailed layout developed for this project and provide dimensioned location and number for each type of roof accessory.
 - 1. Non-penetrating Rooftop Supports: Submit design calculations for loadings and spacings.
 - 2. Submit shop drawings sealed and signed by a Professional Engineer experienced in design of this type of work and licensed in the State of New York.
- D. Warranty Documentation:
 - 1. Submit manufacturer warranty.
 - 2. Ensure that forms have been completed in Owner's name and registered with manufacturer.
 - 3. Submit documentation that roof accessories are acceptable to roofing manufacturer, and do not limit the roofing warranty.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products under cover and elevated above grade.

1.06 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 ROOF CURBS

- A. Manufacturers:
 - 1. AES Industries Inc: www.aescurb.com/#sle.
 - 2. The Pate Company: www.patecurbs.com/#sle.
 - 3. Substitutions: See Section 016000 Product Requirements.
- B. Roof Curbs Mounting Assemblies: Factory fabricated hollow sheet metal construction, internally reinforced, and capable of supporting superimposed live and dead loads and

designated equipment load with fully mitered and sealed corner joints welded or mechanically fastened, and integral counterflashing with top and edges formed to shed water.

- 1. Applications: Roof curbs used for roof penetrations/openings as indicated on drawings.
- 2. Roof Curb Mounting Substrate: Curb substrate consists of steel roof deck.
- 3. Sheet Metal Material:
 - a. Aluminum: 0.080 inch minimum thickness, with 3003 alloy, and H14 temper.1) Finish: Mill finish.
- 4. Provide layouts and configurations indicated on drawings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

3.04 CLEANING

A. Clean installed work to like-new condition.

3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

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SECTION 078400 FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Firestopping systems.
- B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

- A. Section 017000 Execution and Closeout Requirements: Cutting and patching.
- B. Section 070553 Fire and Smoke Assembly Identification.
- C. Section 078100 Applied Fire Protection.
- D. Section 092116 Gypsum Board Assemblies: Gypsum wallboard fireproofing.

1.03 REFERENCE STANDARDS

- A. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials 2020.
- B. ASTM E814 Standard Test Method for Fire Tests of Penetration Firestop Systems 2013a (Reapproved 2017).
- C. ASTM E1966 Standard Test Method for Fire-Resistive Joint Systems 2015 (Reapproved 2019).
- D. ASTM E2174 Standard Practice for On-Site Inspection of Installed Firestop Systems 2020a.
- E. ASTM E2393 Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers 2020a.
- F. ASTM E2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus 2020.
- G. ITS (DIR) Directory of Listed Products current edition.
- H. FM 4991 Approval Standard for Firestop Contractors 2013.
- I. FM (AG) FM Approval Guide current edition.
- J. SCAQMD 1168 Adhesive and Sealant Applications 1989 (Amended 2017).
- K. UL 1479 Standard for Fire Tests of Penetration Firestops Current Edition, Including All Revisions.
- L. UL 2079 Standard for Tests for Fire Resistance of Building Joint Systems Current Edition, Including All Revisions.
- M. UL (DIR) Online Certifications Directory Current Edition.
- N. UL (FRD) Fire Resistance Directory Current Edition.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. Sustainable Design Submittal: Submit VOC content documentation for nonpreformed materials.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Manufacturer's qualification statement.
- G. Installer's qualification statement.

1.05 QUALITY ASSURANCE

- Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire Α. ratings when tested in accordance with methods indicated.
 - Listing in UL (FRD) will be considered as constituting an acceptable test report. 1
- Manufacturer Qualifications: Company specializing in manufacturing the products specified B. in this section with minimum three years documented experience.
- Installer Qualifications: Company specializing in performing the work of this section and: C. Trained by manufacturer.
 - 1.
 - 2. Approved by Factory Mutual Research Corporation under FM 4991, or meeting any two of the following requirements:
 - 3. Verification of minimum three years documented experience installing work of this type.
 - 4. Verification of at least five satisfactorily completed projects of comparable size and type.

1.06 FIELD CONDITIONS

Comply with firestopping manufacturer's recommendations for temperature and conditions Α. during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- **Firestopping Manufacturers:** Α.
 - 3M Fire Protection Products: www.3m.com/firestop/#sle. 1.
 - A/D Fire Protection Systems Inc: www.adfire.com/#sle. 2.
 - Hilti, Inc: www.us.hilti.com/#sle. 3.
 - Tremco Commercial Sealants & Waterproofing; TREMstop Acrylic: 4. www.tremcosealants.com/#sle.
 - 5. Substitutions: See Section 016000 - Product Requirements.

2.02 MATERIALS

- A. Firestopping Materials: Any materials meeting requirements.
- Volatile Organic Compound (VOC) Content: Provide products having VOC content lower Β. than that required by SCAQMD 1168.
- Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of C. materials as required for tested firestopping assembly.
- Fire Ratings: Refer to drawings for required systems and ratings. D

2.03 FIRESTOPPING ASSEMBLY REQUIREMENTS

- Perimeter Fire Containment Firestopping: Use system that has been tested according to Α. ASTM E2307 to have fire resistance F Rating equal to required fire rating of floor assembly.
 - Movement: Provide systems that have been tested to show movement capability as 1. indicated.
- B. Floor-to-Floor (FF), Floor-to-Wall (FW), Head-of-Wall (HW), and Wall-to-Wall (WW) Joints, Except Perimeter, Where Both Are Fire-Rated: Use system that has been tested according to ASTM E1966 or UL 2079 to have fire resistance F Rating equal to required fire rating of the assembly in which the joint occurs.
 - Listing by FM (AG), ITS (DIR), UL (DIR), or UL (FRD) in their certification directories 1 will be considered evidence of successful testing.
- Through Penetration Firestopping: Use system that has been tested according to ASTM C. E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
 - Listing by FM (AG). ITS (DIR). UL (DIR). or UL (FRD) in their certification directories 1. will be considered evidence of successful testing.

2.04 FIRESTOPPING FOR PERIMETER CONTAINMENT

A. Perimeter Joint Systems That Have Not Been Tested For Movement Capabilities (Static-S):

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- 1. 2 Hour Construction: UL System CW-S-0002; Specified Technologies Inc. AS200 Elastomeric Spray.
- 2. 2 Hour Construction: UL System CW-S-0002; Specified Technologies Inc. Fast Tack Firestop Spray.
- 3. 2 Hour Construction: UL System CW-S-0003; Specified Technologies Inc. Fast Tack Firestop Spray.
- 4. 2 Hour Construction: UL System CW-S-0007; Specified Technologies Inc. SpeedFlex TTG Track Top Gasket.

2.05 FIRESTOPPING FOR FLOOR-TO-FLOOR, FLOOR-TO-WALL, HEAD-OF-WALL, AND WALL-TO-WALL JOINTS

- A. Concrete and Concrete Masonry Walls and Floors:
 - 1. Floor-to-Floor Joints:
 - a. 2 Hour Construction: UL System FF-D-1013; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - b. 2 Hour Construction: UL System FF-D-1085; Tremco, TREMstop Acrylic Firestop Sealant.
 - 2. Head-of-Wall Joints at Concrete/Concrete Masonry Wall to Concrete Over Metal Deck Floor:
 - a. 2 Hour Construction: UL System HW-D-0039; Specified Technologies Inc. ES Elastomeric Firestop Sealant.
 - b. 2 Hour Construction: UL System HW-D-0181; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - c. 2 Hour Construction: UL System HW-D-1037; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - 3. Head-of-Wall Joints at Concrete/Concrete Masonry Wall to Concrete Floor:
 - a. 2 Hour Construction: UL System HW-D-0268; Hilti CP 606 Flexible Firestop Sealant.
 - b. 2 Hour Construction: UL System HW-D-0312; Specified Technologies Inc. SIL silicone sealant.
 - 4. Concrete/Concrete Masonry Wall-to-Wall Joint Systems That Have Not Been Tested For Movement Capabilities (Static-S):
- B. Gypsum Board Walls:
 - 1. Wall-to-Wall Joints That Have Not Been Tested For Movement Capabilities (Static-S):
 - a. 2 Hour Construction: UL System WW-S-0063; Specified Technologies Inc. SpeedFlex TTG Track Top Gasket.
 - b. 1 Hour Construction: UL System WW-S-0063; Specified Technologies Inc. SpeedFlex TTG Track Top Gasket.
 - 2. Head-of-Wall Joints at Underside of Steel Beam and Concrete Over Metal Deck Floor with Sprayed On Fireproofing:
 - a. 2 Hour Construction: UL System HW-D-0252; Specified Technologies Inc. AS200 Elastomeric Spray.
 - b. 2 Hour Construction: UL System HW-D-0259; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - c. 1 Hour Construction: UL System HW-D-0259; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - 3. Head-of-Wall Joints at Underside of Flat Concrete:
 - a. 2 Hour Construction: UL System HW-D-1068; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - b. 2 Hour Construction: UL System HW-D-0757; Hilti CFS-TTS Top Track Seal.
 - c. 2 Hour Construction: UL System HW-D-0016; Tremco, TREMstop Acrylic Firestop Sealant.
 - d. 2 Hour Construction: UL System HW-D-0017; Tremco, TREMstop Acrylic Firestop Sealant.
 - e. 2 Hour Construction: UL System HW-D-1072; Tremco, TREMstop Acrylic Firestop Sealant.
 - f. 1 Hour Construction: UL System HW-D-1068; Hilti CFS-SP WB Firestop Joint Spray and CP 672.

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		g. h.	1 Hour Construction: UL System HW-D-0757; Hilti CFS-TTS Top Track Seal. 1 Hour Construction: UL System HW-D-0016; Tremco, TREMstop Acrylic Firestop Sealant.
	4.	He	ad-of-Wall Joints at Concrete Over Metal Deck:
		a.	2 Hour Construction: UL System HW-D-0256; Tremco, TREMstop Acrylic Firestop Sealant.
		b.	1 Hour Construction: UL System HW-D-0256; Tremco, TREMstop Acrylic Firestop Sealant.
	5.	He	ad-of-Wall Joints at Concrete Over Metal Deck, Wall Parallel to Ribs:
		a.	2 Hour Construction: UL System HW-D-0049; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
		b.	2 Hour Construction: UL System HW-D-0184; Hilti CP 606 Flexible Firestop Sealant.
		C.	1 Hour Construction: UL System HW-D-0049; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
	6	a.	Sealant.
	0.	Fit	Ribs
		a.	2 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.
		b.	1 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.
	7.	He to F	ad-of-Wall Joints at Concrete Over Metal Deck, Wall Perpendicular to Ribs, Not Cut =it:
		a.	2 Hour Construction: UL System HW-D-0042; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
		b.	2 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.
		C.	1 Hour Construction: UL System HW-D-0042; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
		d.	1 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.
2.06 FIR CO	EST NST	OPP RUC	ING PENETRATIONS THROUGH CONCRETE AND CONCRETE MASONRY
А.	Blar	nk Oi	peninas:
	1.	In F	Floors or Walls:
		a.	2 Hour Construction: UL System C-AJ-0090; Hilti FS-ONE MAX Intumescent Firestop Sealant.
В.	Pen	etrat	tions Through Floors or Walls By:
	1.	Mu	Itiple Penetrations in Large Openings:
		a.	3 Hour Construction: UL System C-AJ-8099; Hilti FS-ONE MAX Intumescent Firestop Sealant.
		b.	3 Hour Construction: UL System C-AJ-8110; Hilti CFS-BL Firestop Block.
	•	с.	2 Hour Construction: UL System C-AJ-8143; Hilti FS-ONE MAX Intumescent Firestop Sealant.
	2.	Uni	Insulated Metallic Pipe, Conduit, and Tubing:
		a.	2 Hour Construction: UL System C-AJ-1090; Specified Technologies Inc. SSP Firestop Putty.

- b. 2 Hour Construction: UL System C-AJ-1198; Specified Technologies Inc. SIL silicone sealant.
- c. 2 Hour Construction: UL System C-AJ-1226; Hilti FS-ONE MAX Intumescent Firestop Sealant.
- d. 2 Hour Construction: UL System C-AJ-1240; Specified Technologies Inc. LC Endothermic Firestop Sealant.
- e. 2 Hour Construction: UL System C-AJ-1425; Hilti CFS-S SIL GG Firestop Silicone Sealant Gun-Grade.

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3.	Uninsulated Non-Metallic Pipe, Conduit, and Tubing: a. 2 Hour Construction: UL System C-AJ-2167; Hilti FS-ONE MAX Intu Firestop Sealant.	mescent
	 b. 2 Hour Construction: UL System C-AJ-2109; Hilti CP 643N/644 Fires c. 2 Hour Construction: UL System C-BJ-2021; Hilti CP 643N Firestop 	stop Collar. Collar.
4.	 Electrical Cables Not In Conduit: a. 2 Hour Construction: UL System C-AJ-3216; Hilti CFS-PL Firestop P b. 2 Hour Construction: UL System C-AJ-3283; Hilti CP653 Speed Sleet c. 2 Hour Construction: UL System C-AJ-3283; Hilti CP653 Speed Sleet d. 2 Hour Construction: UL System W-J-3198; Hilti CFS-SL RK Retrofit for existing cables. 	lug. eve. eve. Sleeve Kit
Б	e. 2 Hour Construction: UL System W-J-3199; Hilti CFS-SL SK Firestop	o Sleeve Kit.
Э.	a. 2 Hour Construction: UL System C-AJ-4094; Hilti CFS-BL Firestop B	lock.
6.	Electrical Busways: a. 3 Hour Construction: UL System C-AJ-6017; Hilti FS-ONE MAX Intui Fireston Socient	mescent
7.	Insulated Pipes:	
	a. 2 Hour Construction: UL System C-AJ-5048; Hilti FS-ONE MAX Intui Firestop Sealant, CP 606 Flexible Firestop Sealant, CP 601S Elaston Firestop Sealant, CP 604 Self-Leveling Firestop Sealant or CFS-S S Firestop Silicone Sealant Gun-Grade.	mescent neric IL GG
	b. 2 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE IMAX intu Firestop Sealant.	mescent
8.	HVAC Ducts, Uninsulated: a. 3 Hour Construction: UL System C-AJ-7051; Hilti FS-ONE MAX Intui Fireater Sector	mescent
	 b. 2 Hour Construction: UL System C-AJ-7111; Hilti FS-ONE MAX Intui Firestop Sealant. 	mescent
C. Per	netrations Through Floors By:	
1.	 Multiple Penetrations in Large Openings: a. 2 Hour Construction: UL System F-A-8012; Hilti CFS-S SIL GG Fires Sealant Gun-Grade or CFS-S SIL SL Firestop Silicone Sealant Self-L 	stop Silicone .eveling.
2.	 Uninsulated Metallic Pipe, Conduit, and Tubing: a. 2 Hour Construction: UL System F-A-1016; Hilti CP 680-P/M Cast-In b. 2 Hour Construction: UL System F-A-1110; Specified Technologies I cast-in devices. 	Device. nc. CID
3	 c. 2 Hour Construction: UL System F-A-1129; Specified Technologies I Flange Firestop Gasket. Uninsulated Non Metallic Pipe, Conduit, and Tubing: 	nc. Closet
0.	 a. 2 Hour Construction: UL System F-A-2065; Hilti CP 680-P Cast-In Deb. b. 2 Hour Construction: UL System F-A-2213; Hilti CFS-DID Drop-In Dec. c. 2 Hour Construction: UL System F-A-2053; Hilti CP 680-P Cast-In Deb. 	evice. evice. evice.
4.	Electrical Cables Not In Conduit: a. 2 Hour Construction: UL System F-A-3033; Hilti CP 680-P/M Cast-In	Device.
5.	Electrical Busways: a. 2 Hour Construction: UL System F-A-6002; Hilti CP 604 Self-Leveling Sealant	g Firestop
6.	Insulated Pipes: a. 2 Hour Construction: UL System F-A-5015; Hilti CP 680-P/M Cast-In	Device.
D. Per	b. 2 Hour Construction: UL System F-A-5017; Hilti CP 680-P/M Cast-In netrations Through Walls By:	Device.
1.	 Uninsulated Metallic Pipe, Conduit, and Tubing: a. 2 Hour Construction: UL System W-J-1067; Hilti FS-ONE MAX Intum Firestop Sealant. 	nescent
	b. 1 Hour Construction: UL System W-J-1067; Hilti FS-ONE MAX Intum Firestop Sealant.	nescent

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- 2. Electrical Cables Not In Conduit:
 - a. 2 Hour Construction: UL System C-AJ-3095; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System C-AJ-3216; Hilti CFS-PL Firestop Plug.
- 3. Insulated Pipes:
 - a. 2 Hour Construction: UL System C-AJ-5090; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - c. 1 Hour Construction: UL System C-AJ-5090; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - d. 1 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE MAX Intumescent Firestop Sealant.
- 4. HVAC Ducts, Uninsulated:
 - a. 2 Hour Construction: UL System W-J-7109; Hilti FS-ONE MAX Intumescent Firestop Sealant or CP 606 Flexible Firestop Sealant.
- 5. HVAC Ducts, Insulated:
 - a. 2 Hour Construction: UL System W-J-7112; Hilti FS-ONE MAX Intumescent Firestop Sealant.

2.07 FIRESTOPPING PENETRATIONS THROUGH GYPSUM BOARD WALLS

- A. Blank Openings:
 - 1. 2 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.
 - 2. 1 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.
- B. Penetrations By:
 - 1. Multiple Penetrations in Large Openings:
 - a. 2 Hour Construction: UL System W-L-1408; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System W-L-8013; Hilti CFS-BL Firestop Block.
 - c. 2 Hour Construction: UL System W-L-8071; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - d. 2 Hour Construction: UL System W-L-8079; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - e. 1 Hour Construction: UL System W-L-1408; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - f. 1 Hour Construction: UL System W-L-8013; Hilti CFS-BL Firestop Block.
 - g. 1 Hour Construction: UL System W-L-8071; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - h. 1 Hour Construction: UL System W-L-8073; Specified Technologies Inc. Composite Sheet.
 - i. 1 Hour Construction: UL System W-L-8079; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - 2. Uninsulated Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-L-1054; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System W-L-1164; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - c. 2 Hour Construction: UL System W-L-1506; Hilti CFS-D Firestop Cable Disc.
 - d. 1 Hour Construction: UL System W-L-1054; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - e. 1 Hour Construction: UL System W-L-1164; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - f. 1 Hour Construction: UL System W-L-1506; Hilti CFS-D Firestop Cable Disc.
 - 3. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-L-2078; Hilti CP 643N/644 Firestop Collar.
 - b. 2 Hour Construction: UL System W-L-2128; Hilti FS-ONE MAX Intumescent Firestop Sealant.
 - c. 1 Hour Construction: UL System W-L-2078; Hilti CP 643N/644 Firestop Collar.

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		I. 1 Hour Construction: UL System W-L-2128; Hilti FS-ONE MAX Intumescent
	4	Electrical Cables Not In Conduit:
	٦.	 2 Hour Construction: UL System W-L-3065; Hilti FS-ONE MAX Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CD 601S Elastomeric Firestop Sealant. or CP 618 Firestop Putty Stick.
		2 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.
		 2 Hour Construction: UL System W-L-3393; Hilti CFS-SL RK Retrofit Sleeve Kit for existing cables.
		2 Hour Construction: UL System W-L-3395; Hilti CP653 Speed Sleeve.
		2 Hour Construction: UL System W-L-3414; Hilti CFS-D Firestop Cable Disc.
		1 Hour Construction: UL System W-L-3065; Hilti FS-ONE MAX Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CD 601S Elastomeric Firestop Sealant, or CP 618 Firestop Putty Stick.
		 1 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.
		 1 Hour Construction: UL System W-L-3393; Hilti CFS-SL RK Retrofit Sleeve Kit for existing cables. 1 Hour Construction: UL System W L 2414; Hilti CFS D Finanter Cable Disc.
	F	Thour Construction: UL System W-L-3414; Hilli CFS-D Firestop Cable Disc.
	э.	able Trays with Electrical Gables.
		 2 Hour Construction: UL System W-L-4060; Hilti FS-ONE MAX Intumescent Firestop Sealant.
		. 1 Hour Construction: UL System W-L-4011; Hilti CFS-BL Firestop Block.
		 1 Hour Construction: UL System W-L-4060; Hilti FS-ONE MAX Intumescent Firestop Sealant.
	6.	nsulated Pipes:
		 2 Hour Construction: UL System W-L-5028; Hilti FS-ONE MAX Intumescent Firestop Sealant. 2 Hour Construction: UL System W L 5020; Hilti FS ONE Intumescent Fireston
		 2 Hour Construction: UL System W-L-5029; Hilli FS-ONE Intumescent Firestop Sealant. 1 Hour Construction: UL System W-L-5028; Hilti ES-ONE MAX Intumescent
		Firestop Sealant. 1 Hour Construction: UL System W-L-5029; Hilti FS-ONE Intumescent Firestop
	7.	Sealant. IVAC Ducts, Insulated:
		 2 Hour Construction: UL System W-L-7156; Hilti FS-ONE MAX Intumescent Firestop Sealant.
		 I Hour Construction: UL System W-L-7156; Hilti FS-ONE MAX Intumescent Firestop Sealant.
2.08 FIF	REST	PING SYSTEMS
A.	Fire 1.	opping: Any material meeting requirements. Fire Ratings: Use system that is listed by FM (AG), ITS (DIR), or UL (FRD) and testen accordance with ASTM E814, ASTM E119, or UL 1479 with F Rating equal to fire ating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.
PART 3	EXE	JTION
2 01 EV		
3.01 EA		non
A.	veri	
3.02 PR A.		substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that
	cou	adversery alleet bond of mestopping material.

- B. Remove incompatible materials that could adversely affect bond.
- C. Install backing materials to prevent liquid material from leakage.

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3.03 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authorities having jurisdiction.
- C. Install labeling required by code.

3.04 FIELD QUALITY CONTROL

- A. Independent Testing Agency: Inspection agency employed and paid by Owner, will examine penetration firestopping in accordance with ASTM E2174, and ASTM E2393.
- B. Repair or replace penetration firestopping and joints at locations where inspection results indicate firestopping or joints do not meet specified requirements.

3.05 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.06 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

SECTION 079200

JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 016116 Volatile Organic Compound (VOC) Content Restrictions: Additional requirements for sealants and primers.
- B. Section 072500 Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders.
- C. Section 078400 Firestopping: Firestopping sealants.
- D. Section 087100 Door Hardware: Setting exterior door thresholds in sealant.
- E. Section 088000 Glazing: Glazing sealants and accessories.
- F. Section 092116 Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.
- G. Section 092216 Non-Structural Metal Framing : Sealing between framing and adjacent construction in acoustical and sound-rated walls and ceilings.
- H. Section 233100 HVAC Ducts and Casings: Duct sealants.

1.03 REFERENCE STANDARDS

- A. ASTM C661 Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2015.
- B. ASTM C794 Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants 2018.
- C. ASTM C834 Standard Specification for Latex Sealants 2017.
- D. ASTM C919 Standard Practice for Use of Sealants in Acoustical Applications 2018.
- E. ASTM C920 Standard Specification for Elastomeric Joint Sealants 2018.
- F. ASTM C1087 Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems 2016.
- G. ASTM C1193 Standard Guide for Use of Joint Sealants 2016.
- H. ASTM C1248 Standard Test Method for Staining of Porous Substrate by Joint Sealants 2018.
- I. ASTM C1330 Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2018.
- J. ASTM C1521 Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Substrates for which use of primer is required.
 - 6. Substrates for which laboratory adhesion and/or compatibility testing is required.

- 7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
- 8. Sample product warranty.
- 9. Certification by manufacturer indicating that product complies with specification requirements.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- E. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
- F. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.
- G. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- C. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - 1. Adhesion Testing: In accordance with ASTM C794.
 - 2. Compatibility Testing: In accordance with ASTM C1087.
 - 3. Allow sufficient time for testing to avoid delaying the work.
 - 4. Deliver to manufacturer sufficient samples for testing.
 - 5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
 - 6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.
- D. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
 - 1. Identification of testing agency.
 - 2. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
 - a. Test date.
 - b. Copy of test method documents.
 - c. Age of sealant upon date of testing.
 - d. Test results, modeled after the sample form in the test method document.
 - e. Indicate use of photographic record of test.
- E. Field Adhesion Test Procedures:
 - 1. Allow sealants to fully cure as recommended by manufacturer before testing.
 - 2. Have a copy of the test method document available during tests.
 - 3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
 - 4. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
 - 5. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
 - 6. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to

Architect.

- F. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
 - 1. Sample: At least 18 inches long.
 - 2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the "1 inch mark" is that distance from the substrate, the test has failed.
 - 3. If either adhesive or cohesive failure occurs prior to minimum elongation, take necessary measures to correct conditions and re-test; record each modification to products or installation procedures.

1.06 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 - 1. Dow Chemical Company; [____]: consumer.dow.com/en-us/industry/ind-buildingconstruction.html/#sle.
 - 2. Hilti, Inc; [____]: www.us.hilti.com/#sle.
 - 3. Master Builders Solutions by BASF; [____]: www.master-builderssolutions.basf.us/en-us/#sle.
 - 4. Pecora Corporation; [____]: www.pecora.com/#sle.
 - 5. Sherwin-Williams Company; [____]: www.sherwin-williams.com/#sle.
 - 6. Tremco Commercial Sealants & Waterproofing; [____]: www.tremcosealants.com/#sle.
 - 7. Substitutions: See Section 016000 Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
 - f. Joints indicated on Drawings.
 - 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
 - 1) Exception: Through-penetrations in sound-rated assemblies that are also fire-rated assemblies.
 - c. Other joints indicated below.
 - 3. Do not seal the following types of joints.
 - a. Intentional weepholes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.

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- c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
- d. Joints where installation of sealant is specified in another section.
- e. Joints between suspended panel ceilings/grid and walls.
- B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
- C. Interior Joints: Use non-sag silicone sealant, unless otherwise indicated.
 - Type [___] Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
 In Sound-Rated Assemblies: Acrylic emulsion latex sealant.
 - 2. In Sound-Rated Assemblies: Acrylic emulsion latex sealant.
- D. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

2.03 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products with levels of volatile organic compound (VOC) content as indicated in Section 016116.
- B. Colors: Architect to select from manufacturer's standard range..

2.04 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.

В.

- 1. Movement Capability: Plus and minus 50 percent, minimum.
- 2. Non-Staining To Porous Stone: Non-staining to light-colored masonry when tested in accordance with ASTM C1248.
- 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
- 4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
- 5. Color: To be selected by Architect from manufacturer's standard range.
- 6. Service Temperature Range: Minus 20 to 180 degrees F.
- 7. Manufacturers:
 - a. Dow Chemical Company; DOWSIL 756 SMS Building Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
 - b. Dow Chemical Company; DOWSIL 790 Silicone Building Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
 - c. Dow Chemical Company; DOWSIL 791 Silicone Weatherproofing Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
 - d. Tremco Commercial Sealants & Waterproofing; Spectrem 1: www.tremcosealants.com/#sle.
 - e. Substitutions: See Section 016000 Product Requirements.
- C. Type [___] Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
 - 1. Color: To be selected by Architect from manufacturer's standard range.
 - 2. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).
 - 3. Manufacturers:
 - a. Sherwin-Williams Company; 850A Acrylic Latex Caulk: www.sherwinwilliams.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.

2.05 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
 - 1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O Open Cell Polyurethane.
 - 2. Open Cell: 40 to 50 percent larger in diameter than joint width.
 - 3. Manufacturers:
 - a. ADFAST Corporation; ADSEAL BR-2600 (Backer Rod): www.adfastcorp.com/#sle.
 - b. Nomaco, Inc; [____]: www.nomaco.com/#sle.

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- c. Substitutions: See Section 016000 Product Requirements.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.
- D. Preinstallation Adhesion Testing: Install a sample for each test location indicated in the test plan.
 - 1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
 - 2. Notify Architect of date and time that tests will be performed, at least seven days in advance.
 - 3. Record each test on Preinstallation Adhesion Test Log as indicated.
 - 4. If any sample fails, review products and installation procedures, consult manufacturer, or take whatever other measures are necessary to ensure adhesion; re-test in a different location; if unable to obtain satisfactory adhesion, report to Architect.
 - 5. After completion of tests, remove remaining sample material and prepare joint for new sealant installation.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- E. Install bond breaker backing tape where backer rod cannot be used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Non-fire-rated hollow metal doors and frames.
- B. Fire-rated hollow metal doors and frames.
- C. Thermally insulated hollow metal doors with frames.
- D. Hollow metal borrowed lites glazing frames.
- E. Accessories

1.02 RELATED REQUIREMENTS

- A. Section 087100 Door Hardware.
- B. Section 088000 Glazing: Glass for doors and borrowed lites.
- C. Section 099113 Exterior Painting: Field painting.
- D. Section 099123 Interior Painting: Field painting.

1.03 ABBREVIATIONS AND ACRONYMS

- A. ANSI: American National Standards Institute.
- B. ASCE: American Society of Civil Engineers.
- C. HMMA: Hollow Metal Manufacturers Association.
- D. NAAMM: National Association of Architectural Metal Manufacturers.
- E. NFPA: National Fire Protection Association.
- F. SDI: Steel Door Institute.
- G. UL: Underwriters Laboratories.

1.04 REFERENCE STANDARDS

- A. ADA Standards Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. ANSI/SDI A250.4 Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2011.
- C. ANSI/SDI A250.6 Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames 2003 (R2009).
- D. ANSI/SDI A250.8 Specifications for Standard Steel Doors and Frames (SDI-100) 2017.
- E. ANSI/SDI A250.10 Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2011.
- F. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- G. ASTM A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2020.
- H. ASTM A1011/A1011M Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2018a.
- I. BHMA A156.115 American National Standard for Hardware Preparation in Steel Doors and Steel Frames 2016.
- J. ICC A117.1 Accessible and Usable Buildings and Facilities 2017.
- K. NAAMM HMMA 830 Hardware Selection for Hollow Metal Doors and Frames 2002.
- L. NAAMM HMMA 831 Hardware Locations for Hollow Metal Doors and Frames 2011.
- M. NAAMM HMMA 840 Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames 2007.

- N. NAAMM HMMA 861 Guide Specifications for Commercial Hollow Metal Doors and Frames 2014.
- O. NFPA 80 Standard for Fire Doors and Other Opening Protectives 2019.
- P. NFPA 105 Standard for Smoke Door Assemblies and Other Opening Protectives 2019.
- Q. NFPA 252 Standard Methods of Fire Tests of Door Assemblies 2017.
- R. SDI 117 Manufacturing Tolerances for Standard Steel Doors and Frames 2013.
- S. UL (DIR) Online Certifications Directory Current Edition.
- T. UL 10C Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.
- U. UL 1784 Standard for Air Leakage Tests of Door Assemblies Current Edition, Including All Revisions.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
- D. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.
- E. Installer's Qualification Statement.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.
- B. Maintain at project site copies of reference standards relating to installation of products specified.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hollow Metal Doors and Frames:
 - 1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com/#sle.
 - 2. Curries, an Assa Abloy Group company: www.assaabloydss.com/#sle.
 - 3. Republic Doors, an Allegion brand: www.republicdoor.com/#sle.
 - 4. Steelcraft, an Allegion brand: www.allegion.com/#sle.
 - 5. Substitutions: See Section 016000 Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

- A. Requirements for Hollow Metal Doors and Frames:
 - 1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
 - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
 - 3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
 - 4. Door Edge Profile: Manufacturers standard for application indicated.
 - 5. Typical Door Face Sheets: Flush.

- 6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.
- 7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- 8. Zinc Coating for Typical Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
 - a. Based on SDI Standards: Provide at least A40/ZF120 (galvannealed) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvannealed) for corrosive locations.
- B. Hollow Metal Panels: Same construction, performance, and finish as doors.
- C. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

- A. Door Finish: Factory primed and field finished.
- B. Exterior Doors: Thermally insulated.
 - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 3 Extra Heavy-duty.
 - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 2 Seamless.
 - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
 - e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
 - 2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
 - 3. Door Thermal Resistance: U Value of 0.37.
 - 4. Door Thickness: 1-3/4 inches, nominal.
 - 5. Top Closures for Outswinging Doors: Flush with top of faces and edges.
 - 6. Weatherstripping: Refer to Section 087100.
- C. Interior Doors, Non-Fire-Rated:
 - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 2 Heavy-duty.
 - b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 2 Seamless.
 - d. Door Face Metal Thickness: 18 gauge, 0.042 inch, minimum.
 - e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
 - 2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
 - 3. Door Thickness: 1-3/4 inches, nominal.
- D. Fire-Rated Doors:
 - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 2 Heavy-duty.
 - b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 2 Seamless.
 - d. Door Face Metal Thickness: 18 gauge, 0.042 inch, minimum.
 - 2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
 - 3. Temperature-Rise Rating (TRR) Across Door Thickness: In accordance with local building code and authorities having jurisdiction.

- 4. Provide units listed and labeled by UL (DIR).
 - a. Attach fire rating label to each fire rated unit.
- Smoke and Draft Control Doors: Self-closing or automatic closing doors in accordance with NFPA 80 and NFPA 105, with fire-resistance-rated wall construction rated the same or greater than the fire-rated doors, and the following;
 - a. Maximum Air Leakage: 3.0 cfm/sq ft of door opening at 0.10 inch w.g. pressure, when tested in accordance with UL 1784 at both ambient and elevated temperatures.
 - b. Gasketing: Provide gasketing or edge sealing as necessary to achieve leakage limit.
 - c. Label: Include the "S" label on fire-rating label of door.
- 6. Door Core Material: Manufacturers standard core material/construction in compliance with requirements.
- 7. Door Thickness: 1-3/4 inches, nominal.

2.04 HOLLOW METAL FRAMES

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Frame Finish: Factory primed and field finished.
- C. Exterior Door Frames: Full profile/continuously welded type.
 - 1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
 - 2. Frame Metal Thickness: 14 gauge, 0.067 inch, minimum.
 - 3. Weatherstripping: Separate, see Section 087100.
- D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
 - 1. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.
- E. Door Frames, Fire-Rated: Full profile/continuously welded type.
 - 1. Fire Rating: Same as door, labeled.
 - 2. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.
- F. Mullions for Pairs of Doors: Removable type, with profile similar to jambs.
- G. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.
- H. Transom Bars: Fixed, of profile same as jamb and head.
- I. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches high to fill opening without cutting masonry units.
- J. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.06 ACCESSORIES

- A. Door Window Frames: Door window frames with glazing securely fastened within door opening.
 - 1. Size: As indicated on drawings.
 - 2. Frame Material: 18 gauge, 0.0478 inch, galvanized steel.
 - 3. Metal Finish: Gray polyester powder coating.
 - 4. Glazing: 1/4 inch thick, type, as indicated on drawings., in compliance with requirements of authorities having jurisdiction.
 - 5. Manufacturers:
 - a. All Metal Stamping; [____]: www.allmetalstamping.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- B. Glazing: As specified in Section 088000, factory installed.
- C. Removable Stops: As specified in Section 087100.
- D. Astragals for Double Doors: Specified in Section 08 7100.

- 1. Fire-Rated Doors: Steel, shape as required for fire rating.
- E. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.
 - 1. Manufacturers:
 - a. ITW Commercial Construction North America; ITW CCNA-Buildex Teks Select Series; []: www.ITWBuildex.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- F. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- G. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

3.03 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Install door hardware as specified in Section 087100.
 - 1. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.
- E. Comply with glazing installation requirements of Section 088000.
- F. Coordinate installation of electrical connections to electrical hardware items.
- G. Touch up damaged factory finishes.

3.04 TOLERANCES

- A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

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PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush and flush glazed configuration; fire-rated and non-rated.

1.02 RELATED REQUIREMENTS

- A. Section 081113 Hollow Metal Doors and Frames .
- B. Section 087100 Door Hardware.
- C. Section 088000 Glazing.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).
- B. AWMAC/WI (NAAWS) North American Architectural Woodwork Standards, U.S. Version 4.0 2021.
- C. NFPA 105 Standard for Smoke Door Assemblies and Other Opening Protectives 2019.
- D. WDMA I.S. 1A Interior Architectural Wood Flush Doors 2013.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
 - 1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
- D. Samples: Submit two samples of door veneer, 4" x 4" in size illustrating wood grain, stain color, and sheen.
- E. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- F. Specimen warranty.
- G. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
 - 1. Company with at least one project within past five years with value of woodwork within at least 20 percent of cost of woodwork for this project.
 - 2. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Quality Certification:
 - Provide labels or certificates indicating that installed work will comply with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 - 2. Provide designated labels on shop drawings as required by certification program.
 - 3. Provide designated labels on installed products as required by certification program.
 - 4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging, and inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges with tinted sealer if stored more than one week, and break seal on site to permit ventilation.

1.07 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Wood Veneer Faced Doors:
 - 1. VT Industries, Inc; [____]: www.vtindustries.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.

2.02 DOORS

- A. Doors: See drawings for locations and additional requirements.
 - 1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with WDMA I.S. 1A.
 - 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
 - 1. Provide solid core doors at each location.
 - Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C

 Positive Pressure; Underwriters Laboratories Inc (UL) labeled without any visible seals when door is open.
 - 3. Smoke and Draft Control Doors: In addition to required fire rating, provide flush wood door assemblies in compliance with WDMA I.S. 1A requirements for "S" label; no additional gasketing or edge sealing allowed.
 - 4. Wood veneer facing with factory transparent finish.

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type structural composite lumber core (SCLC), plies and faces as indicated.
- B. Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

2.04 DOOR FACINGS

- A. Veneer Facing for Transparent Finish: Match existing door species, , cut, with matching between leaves to match existing doors.
 - 1. Vertical Edges: Any option allowed by quality standard for grade.
- B. Facing Adhesive: Type I waterproof.

2.05 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
 - 1. Provide solid blocks at lock edge for hardware reinforcement.
 - 2. Provide solid blocking for other throughbolted hardware.
- C. Where supplementary protective edge trim is required, install trim after veneer facing has been applied full-width.
- D. Glazed Openings: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
- E. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
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- F. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- G. Provide edge clearances in accordance with the quality standard specified.

2.06 FINISHES - WOOD VENEER DOORS

- A. Finish work in accordance with WDMA I.S. 1A for grade specified and as follows:
 - 1. Transparent:
 - a. System TR-4, Conversion Varnish.
 - b. Stain: Match existing.
 - c. Sheen: Satin.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with color sealer to match door facing.

2.07 ACCESSORIES

- A. Hollow Metal Door Frames: See Section 081113.
- B. Door Window Frames: Door window frames with glazing securely fastened within door opening.
 - 1. Frame Material: 18 gauge, 0.0478 inch, galvanized steel.
 - 2. Metal Finish: Dark Bronze polyester powder coating.
 - 3. Manufacturers:
 - a. All Metal Stamping: www.allmetalstamping.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- C. Glazing: See Section 088000.
- D. Glazing Stops: Rolled steel channel shape, butted corners; prepared for countersink style tamper proof screws. Paint to match door finish color.
- E. Astragals and Edges for Double Doors: Pairs of doors astragals, and door edge sealing and protection devices.
 - 1. UL listed products in compliance with requirements of authorities having jurisdiction.
 - 2. Provide surface mounted astragal to cover or fill space for full door height between pair of doors or door and adjacent jamb.
 - 3. Astragal Type: Split, two parts, and with automatic locking, cutouts for other door hardware, and sealing gasket.
 - 4. Edge Type: Beveled edge
 - 5. Material: Manufacturers standard.
 - 6. Metal Finish: Dark Bronze powder coating.
 - 7. Manufacturers:
 - a. All Metal Stamping; [____]: www.allmetalstamping.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- F. Door Hardware: See Section 087100.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
 1. Install fire-rated doors in accordance with NFPA 80 requirements.
 - 2. Install smoke and draft control doors in accordance with NFPA 105 requirements.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.

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- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

3.03 TOLERANCES

- A. Comply with specified quality standard for fit and clearance tolerances.
- B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

END OF SECTION

SECTION 081743 FRP/ALUMINUM HYBRID DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fiberglass/Aluminum Hybrid doors.
- B. Aluminum Frames.

1.02 RELATED REQUIREMENTS

A. Section 087100 - Door Hardware.

1.03 REFERENCE STANDARDS

- A. AAMA 1304 Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems 2018.
- B. AAMA 1503 Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections 2009.
- C. ASTM D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics 2010 (Reapproved 2018).
- D. ASTM D570 Standard Test Method for Water Absorption of Plastics 1998 (Reapproved 2018).
- E. ASTM D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position 2018.
- F. ASTM D638 Standard Test Method for Tensile Properties of Plastics 2014.
- G. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials 2017.
- H. ASTM D2583 Standard Test Method for Indentation Hardness of Rigid Plastics by Means of Barcol Impressor 2013a.
- I. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- J. ASTM E283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen 2004 (Reapproved 2012).
- K. ASTM E330/E330M Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference 2014.
- L. ASTM E2112 Standard Practice for Installation of Exterior Windows, Doors and Skylights 2019c.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard details, installation instructions, hardware and anchor recommendations.
- C. Shop Drawings: Indicate layout and profiles; include assembly methods.
 - 1. Indicate product components, including hardware reinforcement locations and preparations, accessories, finish colors, patterns, and textures.
 - 2. Indicate wall conditions, door and frame elevations, sections, materials, gauges, finishes, location of door hardware by dimension, and details of openings; use same reference numbers indicated on drawings to identify details and openings.
- D. Selection Samples: Submit two complete sets of color chips, illustrating manufacturer's available finishes, colors, and textures for both fiberglass and aluminum finishes.
- E. Test Reports: Submit certified test reports from qualified independent testing agency indicating doors comply with specified performance requirements.
- F. Maintenance Data: Include instructions for repair of minor scratches and damage.

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G. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer; include detailed terms of warranty.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Mark doors with location of installation, door type, color, and weight.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Deliver pre-assembled doors and frames with braces, spreaders, and packaging as required to prevent damage.
- D. Store materials in original packaging, under cover, protected from exposure to harmful weather conditions and from direct contact with water.
 - 1. Store at temperature and humidity conditions recommended by manufacturer.
 - 2. Do not use non-vented plastic or canvas shelters.
 - 3. Immediately remove wet wrappers.
- E. Store in position recommended by manufacturer, elevated minimum 4 inches above grade, with minimum 1/4 inch space between doors.

1.07 FIELD CONDITIONS

- A. Do not install doors until structure is enclosed.
- B. Maintain temperature and humidity at manufacturer's recommended levels during and after installation of doors.

1.08 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Provide limited lifetime manufacturer warranty covering materials and workmanship of doors, frames and factory installed hardware aganst failure in materials and workmanship, including corner joinery, core deterioration, and delamination or bubbling of door skin and corrosion of all-fiberglass products for original installation.
- C. Provide ten (10) year manufacturer warranty covering materials and workmanship , including degradation or failure due to chemical contact and anodized aluminum finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Pultruded Fiberglass Reinforced Plastic (FRP) Doors with aluminum stiles and rails:
 - 1. Special-Lite, Inc: www.special-lite.com/#sle. Basis of Design: Model SL-17
 - 2. Substitutions: See Section 016000 Product Requirements.

2.02 DOOR AND FRAME ASSEMBLIES

A. Door and Frame Assemblies: Factory-fabricated, prepared and machined for hardware.

- 1. Screw-Holding Capacity: Tested to 890 pounds, minimum.
- 2. Surface Burning Characteristics: Flame spread index (FSI) of 0 to 25, Class A, and smoke developed index (SDI) of 450 or less, when tested in accordance with ASTM E84.
- 3. Flammability: Self-extinguishing when tested in accordance with ASTM D635.
- 4. Clearance Between Door and Frame: 1/8 inch, maximum.
- 5. Clearance Between Bottom of Door and Finished Floor: 3/4 inch, maximum; not less than 1/4 inch clearance to threshold.

2.03 COMPONENTS

- A. Doors: Fiberglass construction with reinforced core.
 - 1. Type: As indicated on drawings, including swinging and sliding doors.
 - 2. Thickness: 1-3/4 inch, nominal.
 - 3. Core Material: Urethane foam.
 - 4. Construction:

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- a. Fiberglass faces 0.120 inches thick, attached to aluminun extruded stiles and rails with an applied gel coating on each side.
- 5. Face Sheet Texture: Pebble grain.
- 6. Face Sheet Class:
 - a. Interior: Class A
 - b. Exterior: Class C
- 7. Door Panel: Flush door.
- 8. Subframe and Reinforcements: aluminum and steel.
- 9. Corners: Mitered and secured with 3/8" tie rods connecting splines at top and bottom.
- 10. Top Rail: Aluminum with interlocking continuous extruded aluminum flush cap.
- 11. Bottom Rail: Aluminum with interlocking manually adjustable door bottom with double nylon brush weatherstripping .
- 12. Meeting Stiles: Aluminum with Integral weatherstripping pocket.
- 13. Waterproof Integrity: Provide factory fabricated edges, cut-outs, and hardware preparations integral to fiberglass reinforced plastic (FRP) face sheets; provide cut-outs with joints sealed independently of glazing, louver inserts, or trim.
- 14. Hardware Preparations: Factory reinforce, machine, and prepare for door hardware including field installed items; provide extruded aluminum blocking; field cutting, drilling or tapping is not permitted; obtain manufacturer's hardware templates for preparation as necessary.
- B. Door Frames: Provide type in compliance with performance requirements specified for doors.
 - 1. Type: Aluminum.
 - 2. Thickness: 0.125 inch.
 - 3. Door Stop: 5/8 inch wide by 1 1/4 inch deep
 - 4. Removable stop on secure side.
 - 5. Non-Fire-Rated:
 - 6. Corner Joints: Mitered with concealed corner blocks or angles of same material as frame; fiberglass and aluminum joined with screws; steel and stainless steel spot welded; sealed watertight with silicone sealant, ; field assemble knock-down type frames as required.
 - 7. Hardware Cut-outs: Provide continuous backing or mortar guards of same material as frame, with watertight seal.
 - 8. Frame Anchors: Stainless steel, Type 304; provide three anchors in each jamb for heights up to 84 inches with one additional anchor for each additional 24 inches in height.
 - 9. Reinforcing: Provide aluminum at hinge, strike and closer and Aluminum reinforcing at all other locations.

2.04 PERFORMANCE REQUIREMENTS

- A. Provide door assemblies that have been designed and fabricated in compliance with specified performance requirements.
- B. Forced Entry Resistance: Pass in accordance with AAMA 1304 test method.
- C. Air Leakage: Maximum of 0.26 cfm per square foot at 6.29 psf differential pressure, when tested in accordance with ASTM E283.
- D. Structural Performance: Withstand positive and negative wind loads as indicated on drawings without damage or permanent set, when tested in accordance with ASTM E330/E330M, using 10 second duration of maximum load.
- E. Thermal Transmittance, Exterior Doors: AAMA 1503, U-value of 0.35, maximum, measured on exterior door in size required for this project.
- F. Fiberglass Reinforced Plastic (FRP) Face Sheet Properties:
 - 1. Izod Impact Resistance: ASTM D256, 14 foot-pound force per inch of width, minimum, with notched izod.
 - 2. Tensile Strength at Break: ASTM D638, 13,000 psi, minimum.
 - 3. Water Absorption: ASTM D570, 0.20 percent, maximum, after 24 hours at 77 degrees F.
 - 4. Flexural Strength: ASTM D790, 21,000 psi, minimum.

5. Barcol Hardness: ASTM D2583, minimum of 55 units.

2.05 FINISHES

- A. Aluminum: Aluminum extrusions made 6063 aluminum alloys
 - 1. Sheet and plate to conform to ASTM-B209.
 - 2. Anodized finish: As selected by Architect from manufactuer's standard line of anodized finishes.
- B. Abuse resistant engineered surface with protective coating and through-molded color.
 1. Panel Texture: Pebble grain.
 - 2. Color: As selected by Architect from manufacturer's full line of colors.

2.06 HARDWARE

A. Door Hardware: See Section 087100.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify actual dimensions of openings by field measurements before door fabrication; show recorded measurements on shop drawings.
- B. Do not begin installation until substrates have been properly prepared.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- B. Clean and prepare substrate in accordance with manufacturer's directions.
- C. Protect adjacent work and finish surfaces from damage during installation.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions; do not penetrate frames with anchors.
- B. Install exterior doors in accordance with ASTM E2112.
- C. Install door hardware as specified in Section 087100.
- D. Set units plumb, level, and true-to-line, without warping or racking doors, and with specified clearances; anchor in place.
- E. Set thresholds in continuous bed of sealant.
- F. In masonry walls, install frames prior to laying masonry; anchor frames into masonry mortar joints; fill jambs with grout as walls are laid up.
- G. Separate aluminum and other metal surfaces from sources of corrosion of electrolytic action at points of contact with other materials.
- H. Repair or replace damaged installed products.

3.04 ADJUSTING

- A. Lubricate, test, and adjust doors to operate easily, free from warp, twist or distortion, and to fit watertight for entire perimeter.
- B. Adjust hardware for smooth and quiet operation.
- C. Adjust doors to fit snugly and close without sticking or binding.

3.05 CLEANING

A. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

3.06 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 084313 ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum-framed storefront, with vision glass.
- B. Aluminum doors and frames.
- C. Weatherstripping.

1.02 RELATED REQUIREMENTS

- A. Section 051200 Structural Steel Framing: Steel attachment members.
- B. Section 079200 Joint Sealants: Sealing joints between frames and adjacent construction.
- C. Section 087100 Door Hardware: Hardware items other than specified in this section.
- D. Section 088000 Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

- A. AAMA CW-10 Care and Handling of Architectural Aluminum From Shop to Site 2015.
- B. AAMA 501.2 Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems 2015.
- C. AAMA 503 Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems 2014.
- D. AAMA 609 & 610 Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document) 2015.
- E. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum 2014 (2015 Errata).
- F. AAMA 1503 Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections 2009.
- G. ASCE 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
- H. ASTM A36/A36M Standard Specification for Carbon Structural Steel 2019.
- I. ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- J. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.
- K. ASTM B209M Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) 2014.
- L. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2020.
- M. ASTM B221M Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) 2013.
- N. ASTM E283/E283M Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen 2019.
- O. ASTM E330/E330M Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference 2014.
- P. ASTM E783 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors 2002 (Reapproved 2018).
- Q. ASTM E1105 Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference 2015.

R. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic") 2002 (Ed. 2004).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of other components that comprise the exterior enclosure.
- B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.
- D. Samples: Submit two samples 4 x 4 inches in size illustrating finished aluminum surface, glass, glazing materials.
- E. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
- F. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.
- G. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.
- H. Manufacturer's Qualification Statement.
- I. Installer's Qualification Statement.
- J. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least 5 years of documented experience.
 - 1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
 - a. Insulating Glass Certification Council (IGCC).
 - b. Safety Glazing Certification Council (SGCC).
- B. Installer Qualifications: Company specializing in performing work of type specified and with at least [____] years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Handle products of this section in accordance with AAMA CW-10.
- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.08 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.09 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Provide ten year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Kawneer North America.

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- B. Other Acceptable Aluminum-Framed Storefronts Manufacturers:
 - 1. Oldcastle BuildingEnvelope; [____]: www.oldcastlebe.com/#sle.
 - 2. Tubelite, Inc; [____]: www.tubeliteinc.com/#sle.
 - 3. Substitutions: See Section 016000 Product Requirements.

2.02 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING

- A. Front-Set Style, Thermally-Broken:
 - 1. Basis of Design: Kawneer Versaglaze Trifab 451T.
 - 2. Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep.

2.03 BASIS OF DESIGN -- SWINGING DOORS

- A. Wide Stile, Insulating Glazing, Thermally-Broken:
 - 1. Basis of Design: Kawneer 500T Insulpour Doors.
 - 2. Thickness: 2-1/4 inches.
- B. Substitutions: See Section 016000 Product Requirements.

2.04 ALUMINUM-FRAMED STOREFRONT

- A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
 - 1. Glazing Rabbet: For 1 inch insulating glazing.
 - 2. Finish: Class II natural anodized.
 - a. Factory finish all surfaces that will be exposed in completed assemblies.
 - b. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.
 - c. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
 - 3. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
 - 4. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
 - 5. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
 - 6. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.
 - 7. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
 - 8. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
- B. Performance Requirements
 - 1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
 - a. Positive Design Wind Load: 25.9 lbf/sq ft.
 - b. Negative Design Wind Load: 28.1 lbf/sq ft.
 - c. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
 - 2. Air Leakage: 0.06 cfm/sq ft maximum leakage of storefront wall area when tested in accordance with ASTM E283/E283M at 1.57 psf pressure difference.
 - 3. Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.
 - 4. Overall U-value Including Glazing: 0.37 maximum.

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2.05 COMPONENTS

- A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system. 1. Glazing Stops: Flush.
- Β. Glazing: As specified in Section 088000.
- C. Swing Doors: Glazed aluminum.
 - 1. Basis of Design: Kawneer 500T Insulpour
 - 2. Top Rail: 5 inches wide.
 - Vertical Stiles: [3.] wide.
 - Bottom Rail: 10 inches wide. 4.
 - 5. Glazing Stops: Square.
 - Finish: Match storefront. 6.
- Solar Shade: Shop fabricated, shop finished, extruded aluminum light shelves, free of D. defects impairing strength, durability or appearance.
- E. Basis-of-Design: Kawneer Versoliel Single Blade System
 - Configuration: As indicated on drawings. 1.
 - Louver Type: Bar. 2.
 - 3. Sun Screen Angle: As indicated on drawings.
 - Outrigger Shape: Wedge. 4.
 - 5. Design Criteria: Design and fabricate to resist the same loads as storefront system as well as the following loads without failure, damage, or permanent deflection:
 - Snow: [___] psf; minimum. Live: [___] psf; minimum. a.
 - b.
 - Thermal Movement: Plus/minus 1/8 inch, maximum. C.
 - Sizes: As indicated on drawings. 6.

2.06 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum: ASTM B209 (ASTM B209M).
- Structural Steel Sections: ASTM A36/A36M; galvanized in accordance with requirements of C. ASTM A123/A123M.
- D. Structural Supporting Anchors: See Section 051200.
- E. Structural Supporting Anchors Attached to Structural Steel: Design for bolted attachment.
- Structural Supporting Anchors Attached to Reinforced Concrete Members: Design for F. welded attachment to weld plates embedded in concrete.
- G. Fasteners: Stainless steel.
- H. Exposed Flashings: Aluminum sheet, 20 gauge, 0.032 inch minimum thickness; finish to match framing members.
- I. Concealed Flashings: Sheet aluminum, 26 gauge, 0.017 inch minimum thickness.
- Sealant for Setting Thresholds: Non-curing butyl type. J.
- Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration K. requirements.
- Glazing Accessories: As specified in Section 088000. L.
- Shop and Touch-Up Primer for Steel Components: Zinc oxide, alkyd, linseed oil primer Μ. appropriate for use over hand cleaned steel.
- Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich. N.

2.07 FINISHES

- Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less Α. than 0.7 mils thick.
- Β. Touch-Up Materials: As recommended by coating manufacturer for field application.

2.08 HARDWARE

- A. For each door, include weatherstripping and threshold.
- B. Other Door Hardware: As specified in Section 087100.
- C. Weatherstripping: Wool pile, continuous and replaceable; provide on all doors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
- G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.
- H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Install hardware using templates provided.
 - 1. See Section 087100 for hardware installation requirements.
- J. Install glass in accordance with Section 088000, using glazing method required to achieve performance criteria.
- K. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.04 FIELD QUALITY CONTROL

- A. Provide services of storefront manufacturer's field representative to observe for proper installation of system and submit report.
- B. See Section 014000 Quality Requirements, for general testing and inspection requirements.
- C. Water-Spray Test: Provide water spray quality test of installed storefront components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.
 - 1. Perform a minimum of 4 tests in each designated area as directed by Architect.
 - 2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
- D. Provide field testing of installed storefront system by independent laboratory in accordance with AAMA 503 during construction process and before installation of interior finishes.
 - 1. Perform a minimum of two tests in each designated area as indicated on drawings.
 - 2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.

- 3. Field test for water penetration in accordance with ASTM E1105 with uniform static air pressure difference (Procedure A) not less than 4.18 psf.
 - a. Maximum allowable rate of water penetration in 15-minute test is 0.5 ounce that is not contained in an area with provisions to drain to exterior, or collected on surface of interior horizontal framing member.
- 4. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf.
 - a. Maximum allowable rate of air leakage is 0.09 cfm/sq ft.
- E. Repair or replace storefront components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 ADJUSTING

A. Adjust operating hardware and door leafs for smooth operation.

3.06 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.
- C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.07 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 085113 ALUMINUM WINDOWS

PART 2 PRODUCTS

1.01 ALUMINUM WINDOWS

- A. Aluminum Windows: Extruded aluminum frame and sash, factory fabricated, factory finished, with operating hardware, related flashings, and anchorage and attachment devices.
 - 1. Frame Depth: 3-1/2 inch.
 - 2. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for operating hardware and imposed loads.
 - 3. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
 - 4. Movement: Accommodate movement between window and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
 - 5. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.

END OF SECTION

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SECTION 087100 DOOR HARDWARE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including general and supplementary conditions and division 01 specification sections, apply to this section.

1.2 SUMMARY

- A. Section includes mechanical door hardware for the following:
 - 1. Swinging doors.
- B. Comply with New York State Education Department 1998 Edition of the Manual of Planning Standards Section S105 Door Hardware and NFPA 101-Life Safety Code.

1.3 RELATED SECTIONS:

- A. Division 08 section "hollow metal doors and frames"
- B. Division 08 section "integrated composite door opening assemblies"
- C. Division 08 section "aluminum-framed entrances and storefronts"
- D. Division 28 section "access control" for access control devices installed at door openings and provided as part of a security system.
- E. Division 28 section "intrusion detection" for detection devices installed at door openings and provided as part of an intrusion-detection system.
- F. Division 28 section "digital, addressable fire-alarm system" for connections to building firealarm system.

1.4 SUBMITTALS

- A. Product data: for each item of hardware indicated furnish manufacturer's catalog sheets highlighting information pertaining specifically to product(s) submitted. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop drawings: details of electrified door hardware, indicating the following:
 - 1. Wiring diagrams: for power, signal, and control wiring and including the following:

- a. Details of interface of electrified door hardware and building safety and security systems.
- 2. Operation narrative: describe the operation of doors controlled by electrified door hardware.
- C. Other action submittals:
 - 1. Door hardware schedule: prepared by or under the supervision of installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - a. Format: comply with scheduling sequence and vertical format in dhi's "sequence and format for the hardware schedule." double space entries, and number and date each page.
 - b. Content: include the following information:
 - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
 - 2) Locations of each door hardware set, cross-referenced to drawings on floor plans and to door and frame schedule.
 - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
 - 4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
 - 5) Fastenings and other pertinent information.
 - 6) Explanation of abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for door hardware.
 - 8) List of related door devices specified in other sections for each door and frame.
 - 9) Door index cross referencing door number with page and/or set number.
 - 2. Keying schedule: prepared by or under the supervision of installer, detailing owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the contract documents.
- D. Qualification data: for installer and architectural hardware consultant.
- E. Product certificates: for electrified door hardware, from the manufacturer.
 - 1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- F. Product test reports: for compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.
- G. Maintenance data: for each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.
- H. Warranty: special warranty specified in this section.

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1.5 QUALITY ASSURANCE

- A. Installer qualifications: supplier of products and an employer of workers trained and approved by product manufacturers and an architectural hardware consultant who is available during the course of the work to consult with contractor, architect, and owner about door hardware and keying.
- B. Architectural hardware consultant qualifications: a person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this project.
- C. Source limitations: obtain each type of door hardware from a single manufacturer.
- D. Fire-rated door assemblies: where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with nfpa 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to nfpa 252 or ul 10c, unless otherwise indicated.
- E. Smoke- and draft-control door assemblies: where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to ul 1784 and installed in compliance with nfpa 105.
 - 1. Air leakage rate: maximum air leakage of 0.3 cfm/sq. Ft. At the tested pressure differential of 0.3-inch wg of water.
- F. Electrified door hardware: listed and labeled as defined in nfpa 70, article 100, by a testing agency acceptable to authorities having jurisdiction.
- G. Means of egress doors: latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- H. Accessibility requirements: for door hardware on doors in an accessible route, comply with the u.s. Architectural & transportation barriers compliance board's ada-aba accessibility guidelines and icc/ansi a117.1.
 - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
 - 2. Comply with the following maximum opening-force requirements:
 - a. Interior, non-fire-rated hinged doors: 5 lbf applied perpendicular to door.
 - b. Sliding or folding doors: 5 lbf applied parallel to door at latch.
 - c. Fire doors: minimum opening force allowable by authorities having jurisdiction.
 - 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
 - 4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.
- I. Keying conference: conduct conference at project site to comply with requirements in division 01 section "project management and coordination." incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
 - 1. Plans for future expansion.

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- 2. Preliminary key system schematic diagram.
- 3. Requirements for key control system.
- 4. Requirements for access control.
- 5. Address for delivery of keys.
- J. Preinstallation 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. Inspect and discuss preparatory work performed by other trades.
 - 3. Inspect and discuss electrical roughing-in for electrified door hardware.
 - 4. Review sequence of operation for each type of electrified door hardware.
 - 5. Review required testing, inspecting, and certifying procedures.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

1.7 COORDINATION

- A. Installation templates: distribute for doors, frames, and other work specified to be factory prepared. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Security: coordinate installation of door hardware, keying, and access control with owner's security consultant.
- C. Electrical system roughing-in: coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- D. Existing openings: where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

1.8 WARRANTY

- A. Special warranty: manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - 2. Structural failures including excessive deflection, cracking, or breakage.
 - 3. Faulty operation of doors and door hardware.
 - 4. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

- B. Warranty period: three years from date of substantial completion, unless otherwise indicated.
 - 1. Exit devices: three years from date of substantial completion.
 - 2. Manual closers: 25 years from date of substantial completion.
 - 3. Locksets: 10 years from date of substantial completion.
 - 4. Continuous hinges: lifetime of opening

1.9 MAINTENANCE SERVICE

A. Maintenance tools and instructions: furnish a complete set of specialized tools and maintenance instructions for owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 PRODUCTS

1.10 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled on drawings with hardware sets scheduled in part 3 "door hardware schedule" article to comply with requirements in this section.
 - 1. Door hardware sets: provide quantity, item, size, finish or color indicated, and named manufacturers' products.
 - 2. Sequence of operation: provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
- B. Designations: requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in part 3 "door hardware schedule" article. Products are identified by using 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.

1.11 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollowmetal doors and hollow-metal frames.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Stanley Commercial Hardware; Div. of Stanley Black & Decker
 - b. McKinney Products Company; an ASSA ABLOY Group Company.
 - c. Hager Companies.

1.12 CONTINUOUS HINGES

A. Continuous hinges: BHMA A156.26; minimum 0.120-inch- thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.

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- B. Continuous, gear-type hinges: extruded-aluminum, pinless, geared hinge leaves joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Select Products, Ltd.
 - b. Pemko Mfg. Co.; an Assa Abloy Group Company
 - c. Hager Companies.

1.13 MECHANICAL LOCKS AND LATCHES

- A. Lock functions: as indicated in door hardware schedule.
- B. Lock throw: comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
 - 1. Bored locks: minimum 1/2-inch latchbolt throw.
 - 2. Mortise locks: minimum 3/4-inch latchbolt throw.
 - 3. Deadbolts: minimum 1-inch bolt throw.
- C. Lock backset: 2-3/4 inches, unless otherwise indicated.
- D. Lock trim:
 - 1. Description: as indicated in door hardware schedule
 - 2. Levers: zinc alloy
 - 3. Escutcheons (roses): wrought
- E. Strikes: provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
 - 1. Flat-lip strikes: for locks with three-piece antifriction latch bolts, as recommended by manufacturer.
 - 2. Extra-long-lip strikes: for locks used on frames with applied wood casing trim.
- F. Bored locks: BHMA A156.2; grade 1; series 4000.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Best Access Systems; a Dormakaba Holding, Inc. Company
 - b. Sargent; an ASSY ABLOY Group Company (10X Series)

1.14 ELECTRIC STRIKES

- A. Electric strikes: BHMA A156.31; grade 1; with faceplate to suit lock and frame.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. HES; an ASSA ABLOY Group Company.
 - b. Trine Access Technology.

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c. Von Duprin; an Allegion Company.

1.15 MANUAL FLUSH BOLTS

- A. Manual flush bolts: BHMA A156.16; minimum 3/4-inch throw; designed for mortising into door edge.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Rockwood; an ASSA ABLOY Group Company
 - b. Door Controls International, Inc.
 - c. Ives Hardware; an Ingersoll-Rand Company.

1.16 AUTOMATIC AND SELF-LATCHING FLUSH BOLTS

- A. Automatic and self-latching flush bolts: BHMA A156.16; minimum 3/4-inch throw; designed for mortising into door edge.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Rockwood; an ASSA ABLOY Group Company
 - b. Ives Hardware; an Ingersoll-Rand Company.
 - c. Door Controls International, Inc.

1.17 EXIT DEVICES AND AUXILIARY ITEMS

- A. Exit devices and auxiliary items: BHMA A156.3.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Precision Hardware, Inc.; a Dormakaba Holding, Inc. Company
 - b. Von Duprin; an Allegion Company
 - c. Sargent Manufacturing Company; an ASSA ABLOY Company

1.18 LOCK CYLINDERS

- A. Lock cylinders: tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Best Access Systems; a Dormakaba Holding, Inc. Company (to match existing)
- B. Standard lock cylinders: BHMA A156.5; grade 1; permanent cores that are interchangeable; face finished to match lockset.

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- C. Construction cores: provide cylinders with keyed alike construction cores. Cores shall be painted a color for easy identification (blue, orange, etc.). Construction cores shall be returned to the hardware supplier. Provide 10 construction master keys and two construction control keys for removing temporary cores.
- D. Provide final permanent cores with visual key control. Stamp keys and (in a concealed location) stamp cores with keyset symbol.

1.19 KEYING

- A. Keying system: factory registered, integrated with existing Best Access Systems key system, complying with guidelines in BHMA A156.28, appendix a. Incorporate decisions made in keying conference.
 - 1. Existing system:
 - a. Master key or grand master key locks to owner's existing Best Access Systems key system.
- B. Keys: nickel silver.
 - 1. Stamping: permanently inscribe each key with a visual key control number and include the following notation:
 - a. Notation: "do not duplicate."
 - 2. Quantity: in addition to one extra key blank for each lock, provide the following unless otherwise directed by owner:
 - a. Cylinder change keys: three.
 - b. Master keys: five.
 - c. Grand master keys: five.
 - d. Great-grand master keys: five.

1.20 ACCESSORIES FOR PAIRS OF DOORS

- A. General: provide accessories for pairs of doors as indicated on schedule.
- B. Coordinators: BHMA A156.3; consisting of active-leaf, hold-open lever and inactive-leaf release trigger; fabricated from steel with nylon-coated strike plates; with built-in, adjustable safety release; and with internal override.
- C. Carry-open bars: BHMA A156.3; prevent the inactive leaf from opening before the active leaf; provide polished brass or bronze carry-open bars with strike plate for inactive leaves of pairs of doors unless automatic or self-latching bolts are used.
- D. Astragals: BHMA A156.22.

1.21 SURFACE CLOSERS

A. Surface closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with

manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

- 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Dorma Architectural Hardware; a Dormakaba Holding, Inc. Company
 - b. LCN Closers: an Allegion Company
 - c. Sargent Manufacturing Company; an ASSA ABLOY Group Company
 - d. Norton; an ASSA ABLOY Group Company
 - e. Corbin Russwin; an ASSA ABLOY Group Company

1.22 MECHANICAL STOPS AND HOLDERS

- A. Wall- and floor-mounted stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Rockwood; an ASSA ABLOY Group Company
 - b. Burns Manufacturing Incorporated.
 - c. Ives Hardware; an Allegion Company.

1.23 ELECTROMAGNETIC STOPS AND HOLDERS

- A. Electromagnetic door holders: BHMA A156.15, grade 1; wall-mounted or floor-mounted electromagnet unit with strike plate attached to swinging door; coordinated with fire detectors and interface with fire alarm system for labeled fire-rated door assemblies.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Rixson; an ASSA ABLOY Group Company
 - b. Architectural Builders Hardware Mfg., Inc.
 - c. LCN Closers; an Allegion Company

1.24 OVERHEAD STOPS AND HOLDERS

- A. Overhead stops and holders: BHMA A156.8.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Glynn-Johnson; an Ingersoll-Rand Company.
 - b. Sargent Manufacturing Company; an ASSA ABLOY Group Company.
 - c. Architectural Builders Hardware Mfg., Inc.

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1.25 DOOR GASKETING

- A. Door gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to astm e 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Pemko Manufacturing Co.; an ASSA ABLOY Group Company.
 - b. National Guard Products.
 - c. Zero International; an Allegion Company

1.26 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Pemko Manufacturing Co.; an ASSA ABLOY Group Company.
 - b. National Guard Products.
 - c. Zero International; an Allegion Company

1.27 METAL PROTECTIVE TRIM UNITS

- A. Metal protective trim units: BHMA A156.6; fabricated from 0.050-inch- thick stainless steel as scheduled; with four beveled edges and countersunk screw holes with manufacturer's standard machine or self-tapping screw fasteners.
 - 1. Basis-of-design product: subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
 - a. Rockwood; an ASSA ABLOY Group Company
 - b. Burns Manufacturing Incorporated.
 - c. Ives Hardware; an Allegion Company.

1.28 FABRICATION

- A. Manufacturer's nameplate: do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by architect.
 - 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base metals: produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.

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- C. Fasteners: provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted.
 - 1. Fire-rated applications:
 - a. Wood or machine screws: for the following:
 - 1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
 - 2) Strike plates to frames.
 - 3) Closers to doors and frames.
 - b. Steel through bolts: do not use through bolts for installation where bolt head or nut on opposite face is exposed unless noted or it is the only means of securely attaching the door hardware and approved by architect.
 - 1) Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
 - 2) Verify that blocking is provide for the following:
 - a) Surface hinges to doors.
 - b) Closers to doors and frames.
 - c) Surface-mounted exit devices.
 - c. Spacers or sex bolts: for through bolting of hollow-metal doors.
 - 2. Fasteners for wood doors: comply with requirements in DHI wdhs.2, "recommended fasteners for wood doors."
 - 3. Gasketing fasteners: provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

1.29 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. 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 the 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.

PART 2 EXECUTION

1.30 EXAMINATION

A. Examine doors and frames, with installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

1.31 PREPARATION

- A. Steel doors and frames: for surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood doors: comply with DHI WDHS.5 "Recommended hardware reinforcement locations for mineral core wood flush doors."

1.32 INSTALLATION

- A. Mounting heights: mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard steel doors and frames: ANSI/SDI A250.8.
 - 2. Wood doors: DHI WDHS.3, "Recommended locations for architectural hardware for wood flush doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in division 09 sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
 - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards. Hand tighten screws and fasteners, use of power tools must be limited to preliminary driving screws if permitted by the door and hardware manufacturer.
- C. Hinges: install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Door closers shall be installed to obtain the greatest degree swing allowed by field conditions. Follow manufacturer's instructions for proper door closer adjustment for spring power, back check, closing and latching speed.
- E. Intermediate offset pivots: where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.
- F. Lock cylinders: install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as indicated in keying schedule.

- G. Key control system: tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- H. Provide and install all low voltage control wiring from power supply to all door hardware. Provide and install 120v power wiring from EC-provided junction box to power supply (supplied under this section). Provide wiring as recommended by device manufacturer.
- I. Boxed power supplies: locate power supplies as indicated or, if not indicated, above accessible ceilings. Verify location with architect.
 - 1. Configuration: provide one power supply for each door opening with electrified door hardware.
- J. Thresholds: set thresholds for exterior and interior doors in full bed of sealant complying with requirements specified in division 07 section "joint sealants."
- K. Stops: provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- L. Perimeter gasketing: apply to head and jamb, forming seal between door and frame.
- M. Meeting stile gasketing: fasten to meeting stiles, forming seal when doors are closed.
- N. Door bottoms: apply to bottom of door, forming seal with threshold when door is closed.

1.33 ADJUSTING

- A. Initial adjustment: adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring hinges: adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
 - 2. Electric strikes: adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door closers: adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy adjustment: approximately three months after date of substantial completion, installer's architectural hardware consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

1.34 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of substantial completion.

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1.35 DOOR HARDWARE SCHEDULE

- A. Supplier shall assume full responsibility for examination of the drawings and shall be responsible for the accuracy of the quantities, size, finish and proper hardware whether specifically mentioned or not. Hardware not listed specifically must be furnished to match other hardware in similar openings.
- B. Provide all required accessories and options necessary for complete installation of each hardware component, to ensure proper operation of the product.
- C. Hardware for aluminum doors shall be shipped to the door manufacturer's factories for installation with the exception of door closers and thresholds, if required or requested.
- D. Hardware Codes:

Note: Hinges specified for aluminum doors are based on Kawneer 500T doors. Coordinate with door manufacturer if other than the 500T is submitted.

- 001 1 ea. continuous hinge SL-11HD Clear Anodized
- 001A 1 ea. continuous hinge SL-11HD Clear Anodized Prep EPT
- 101 1 ea. continuous hinge SL-24HD Clear Anodized
- 102 3 ea. hinges FBB168 US26D 4-1/2 x 4-1/2
- 103 3 ea. hinges FBB179 US26D 4-1/2 x 4-1/2
- 200 1 ea. closer (pull side) 8916 AF89 FMC SN1 689
- 200A 1 ea. closer (pull side stop arm) 8916 IS FMC SN1 689
- 201 1 ea. closer (push side) 8916 SPA FMC SN1 689
- 202 1 ea. closer (push side stop arm) 8916 DS FMC SN1 689
- 203 1 ea. closer (push side stop hold open arm) 8916 DST FMC SN1 689
- 204 1 ea. electrohydraulic handicap power operator Napco GT710-04OP Opman Clear Anodized (Top jamb mount push side with handicap operation @ RHR leaf, manual operation @ LHR leaf)
- 205 1 ea. wall mounted actuator switch Wikk 4x4-3 Mobile Logo
- 206 1 ea. surface box for actuator switch Wikk 4Nx4S
- 207 1 ea. electromechanical closer (Top jamb pull side) Norton SafeZone 7113SZ 689
- 208 1 ea. electromechanical closer (Top jamb pull side) Norton SafeZone 7113SZ x DZ 689
- 209 1 ea. electromechanical closer (Top jamb push side) Norton SafeZone 7123SZ 689
- 210 1 ea. electromechanical closer (Top jamb push side) Norton SafeZone 7123SZ x DZ 689
- Note: Norton SafeZone closers operate on120VAC or 24VC (verify with Owner). Door is manually opened. Motion sensors allow door to remain in the open position with nine selectable hold time settings after movement is no longer detected. Door will then close.
- Note: Provide drop plates, long arms, shoe support and spacers, as required.
- 3001 ea.surface vertical rod exit device FL2208 x V4908D LBR SNB US32D
(Key locks and unlocks outside lever)
- 301
 1 ea.
 rim exit device MLR2403 x NCA-03 SNB US32D with motorized latch retraction
- 302 1 ea. rim exit device CD2403 x NCA-03 SNB US32D

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303	1 ea.	rim exit device CD2401 SNB US32D	
304	1 ea.	keyed removable mullion KR822 689	
305	1 ea.	power transfer EPT-12C	
306	1 ea.	power supply RPSMLR2BB with batteries	
Note: Ll doors	BR = les	s bottom rod - fire bolt assembly must be installed in lower door edge at	fire rated
400	1 ea.	rim cylinder 12E72 or mortise 1E74, as required 626	
401	1 ea.	lockset (classroom) 9K3-7R14D 626	
401LD	1 ea.	lockset (classroom intruder) 9K3-7IN14D 626	
402	1 ea.	lockset (storeroom) 9K3-7D14D 626	
403	1 ea.	passage 9K3-0N14D 626	
404	1 ea.	privacy 9K3-0L14D 626	
405	1 ea.	lockset (dormitory) 9K3-7T14D 626	
Note: P	rovide 3	/4" throw latch at Pairs of Doors.	
500	1 set	combination flush bolts 2845 x 22" top rod x 570 strike	
503	3 ea.	silencers 608 @ Sgl. Drs., 2 @ Pair Drs.	
504	1 ea.	wall bumper 406 @ exit devices, 409 @ locksets US32D or floor stop	441 US26D
505	1 ea.	overhead surface stop GJ450S Series US32D	
600	1 ea.	kick plate K1050 8" x 2"LDW @ Sgl. Drs., 8" x 1"LDW @ Pair Doors	
		US32D .050 B4E x countersunk screw holes	
601	1 ea.	door pull BF157 - 1" diameter x 10" CTC US32D	
602	1 ea.	push plate 70C-RKW 4" x 16" US32D	
603	1 ea.	pull plate BF111 x 70C US32D (pull 1" diameter x 10"CTC on 4" x 16"	plate
700	1 ea.	smoke seal S44C Clear for H&J	
700A	1 ea.	smoke seal S771C Clear for Meeting Stile	
701	1 ea.	smoke seal 316AS x Tek for H&J	
702	1 ea.	door sweep 315CN x Tek	
703	1 set	weatherstrip for Meeting Stile, H&J by Section 081613/084313	
704	1 ea.	mullion gasketing 5110BL	
705	1 ea.	astragal 357SS	
706	1 ea.	mortise automatic door bottom 411APKL	
707	1 set	sound seal 312CR x Tek for H&J	
800	1 ea.	aluminum threshold by Section 084313	
801	1 ea.	aluminum threshold 252x3AFG - 1/2"H x 5-1/8"W x MSES25SS	
802	1 ea.	aluminum threshold 270A - 1/4"H x 4"W x MS10SS	
1000	1 ea.	access control by others	

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E. Doors/Codes:

<u>SET 1</u>	
1-5 (2)	001-001A-204-205-206-301-303-304-305-306-3/400-2/601-2/702-
	703-800-1000
<u>SET 2</u>	
1-6	001-203-302-2/400-601-702-703-800
125-1	001-203-302-2/400-601-702-703-800
132-1	001-203-302-2/400-601-702-703-800
<u>SET 3</u>	
1-2 (2)	2/001-2/203-402-500-2/600-2/702-703-705-801
<u>SET 4</u>	
1-3 (2)	2/101-207-208-2/300-2/400-2/504-2/600-700A-701
<u>SET 5</u>	
1-4 (2)	2/101-209-210-2/504-2/600-2/602-2/603-700A-701
<u>SET 6</u>	
159-1	102-200-401-504-600-700
172-1	102-200-401-504-600-700
<u>SET 7</u>	
6-1	102-200-401LD-504-600-700
<u>SET 8</u>	
1-1	102-200A-401LD-600-700
2-1	102-200A-401LD-600-700
3-1	102-200A-401LD-600-700
7-1	102-200A-401LD-600-700
8-1	102-200A-401LD-600-700
214-1	102-200A-401LD-600-700
<u>SET 9</u>	
4-1	102-200A-401LD-600-706-707-802
5-1	102-200A-401LD-600-706-707-802
<u>SET 10</u>	
4A-1	103-401-503-504

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5A-1	103-401-503-505
<u>SET 11</u>	
6A-1	103- 405 -503-504
6B-1	103- 405 -503-504
7A-1	103- 405 -503-504
7B-1	103- 405 -503-504
7C-1	103- 405 -503-504
8A-1	103- 405 -503-504
	ALTERNATE:
<u>SET 12</u>	
102A-1	103-405-503-504
<u>SET 13</u>	
102B-1	103- 401 -503-504
102C-1	103- 401 -503-504
<u>SET 14</u>	
102D-1	103- 405 -503-505
<u>SET 15</u>	
132-2	001-203-302-2/400-601-702-703-800
181-1	001-203-302-2/400-601-702-703-800

END OF SECTION 08 7100

PART 1 GENERAL

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1.01 SECTION INCLUDES

- A. Insulating glass units.
- B. Glazing units.
- C. Glass coatings.
- D. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 079200 Joint Sealants: Sealants for other than glazing purposes.
- B. Section 081113 Hollow Metal Doors and Frames : Glazed lites in doors and borrowed lites.
- C. Section 081416 Flush Wood Doors : Glazed lites in doors.
- D. Section 084313 Aluminum-Framed Storefronts: Glazing furnished as part of storefront assembly.

1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 Safety Standard for Architectural Glazing Materials Current Edition.
- B. ANSI Z97.1 American National Standard for Safety Glazing Materials Used in Buildings -Safety Performance Specifications and Methods of Test 2015.
- C. ASCE 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
- D. ASTM C864 Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers 2005 (Reapproved 2019).
- E. ASTM C920 Standard Specification for Elastomeric Joint Sealants 2018.
- F. ASTM C1036 Standard Specification for Flat Glass 2021.
- G. ASTM C1048 Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass 2018.
- H. ASTM C1193 Standard Guide for Use of Joint Sealants 2016.
- I. ASTM C1376 Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass 2021.
- J. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials 2020.
- K. ASTM E1300 Standard Practice for Determining Load Resistance of Glass in Buildings 2016.
- L. ASTM E2190 Standard Specification for Insulating Glass Unit Performance and Evaluation 2010.
- M. GANA (SM) GANA Sealant Manual 2008.
- N. NFPA 252 Standard Methods of Fire Tests of Door Assemblies 2017.
- O. NFRC 100 Procedure for Determining Fenestration Product U-factors 2017.
- P. NFRC 200 Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence 2014, with Errata (2017).
- Q. NFRC 300 Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems 2017.
- R. UL (DIR) Online Certifications Directory Current Edition.
- S. UL 10B Standard for Fire Tests of Door Assemblies Current Edition, Including All Revisions.
- T. UL 10C Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.

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U. UL 263 - Standard for Fire Tests of Building Construction and Materials Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
- C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
- D. Samples: Submit one samples 12 by 12 inch in size of insulated units and fire rated units..
- E. Certificate: Certify that products of this section meet or exceed specified requirements.
- F. Installer's qualification statement.
- G. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
 - 1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
 - a. Insulating Glass Certification Council (IGCC).
 - b. Safety Glazing Certification Council (SGCC).
- C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.
 - 1. Provide company, field supervisors, and installers that hold active ANSI accredited certifications in appropriate categories for work specified.
 - a. North American Contractor Certification (NACC) for glazing contractors.
 - b. Equivalent independent third-party ANSI accredited certification.

1.07 MOCK-UPS

- A. See Section 014000 Quality Requirements, for additional mock-up requirements.
- B. Provide on-site glazing mock-up with the specified glazing components.
- C. Locate where directed.
- D. Mock-ups may remain as part of the Work.

1.08 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 40 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.09 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Insulating Glass Units: Provide a 20 year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Float Glass Manufacturers:

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- Cardinal Glass Industries; [____]: www.cardinalcorp.com/#sle. Guardian Glass, LLC; [____]: www.guardianglass.com/#sle. 1.
- 2.
-]: www.pilkington.com/na/#sle. Pilkington North America Inc; [____ 3.
- Vitro Architectural Glass (formerly PPG Glass); []: www.vitroglazings.com/#sle. 4.
- 5. Substitutions: See Section 016000 - Product Requirements.
- Β. Fire-Protection-Rated Glass: Provide products as required to achieve indicated fire-rating period.
 - Manufacturers: 1.
 - SAFTIFIRST, a division of O'Keeffe's Inc; SuperClear 45-HS: a. www.safti.com/#sle.
 - Technical Glass Products: [1: www.fireglass.com/#sle. h
 - Vetrotech North America; Contraflam 45: www.vetrotechusa.com/#sle. С
 - Ь Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

- Provide type and thickness of exterior glazing assemblies to support assembly dead loads, Α and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
 - Design Pressure: Calculated in accordance with ASCE 7. 1.
 - Comply with ASTM E1300 for design load resistance of glass type, thickness, 2. dimensions, and maximum lateral deflection of supported glass.
 - 3. Seismic Loads: Design and size glazing components to withstand seismic loads and sway displacement in accordance with the requirements of ASCE 7
 - Provide glass edge support system sufficiently stiff to limit the lateral deflection of 4. supported glass edges to less than 1/175 of their lengths under specified design load. 5. Glass thicknesses listed are minimum.
 - Vapor Retarder and Air Barrier Seals: Provide completed assemblies that maintain
- B. continuity of building enclosure vapor retarder and air barrier.
 - In conjunction with vapor retarder and joint sealer materials described in other 1. sections.
 - To maintain a continuous vapor retarder and air barrier throughout the glazed 2. assembly from glass pane to heel bead of glazing sealant.
- Thermal and Optical Performance: Provide exterior glazing products with performance C. properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
 - Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National 1. Laboratory (LBNL) WINDOW 6.3 computer program.
 - Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using 2. Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 - Solar Optical Properties: Comply with NFRC 300 test method. 3

2.03 GLASS MATERIALS

- Float Glass: Provide float glass based glazing unless otherwise indicated. Α.
 - Annealed Type: ASTM C1036. Type I Transparent Flat. Class 1 Clear. Quality -1. Q3.
 - 2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
 - Kind FT Fully Tempered Type: Complies with ASTM C1048. 3.
 - Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for 4. safety glazing used in hazardous locations.
 - 5. Tinted Type: ASTM C1036, Class 2 - Tinted, Quality - Q3, with color and performance characteristics as indicated.
 - Thicknesses: As indicated; provide greater thickness as required for exterior glazing 6. wind load design.

2.04 INSULATING GLASS UNITS

- Manufacturers: Α.
 - Guardian Glass, LLC; Basis of Design: www.guardianglass.com/#sle. 1.

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- Pilkington North America Inc; [____]: www.pilkington.com/na/#sle.Pilkington North America Inc; [____]: www.pilkington.com/na/#sle. Viracon, Apogee Enterprises, Inc; [____]: www.viracon.com/#sle. 2.
- 3.
- Vitro Architectural Glass (formerly PPG Glass); [__]: www.vitroglazings.com/#sle. 4.
- Substitutions: See Section 016000 Product Requirements. 5.
- Β. Insulating Glass Units: Types as indicated.
 - Durability: Certified by an independent testing agency to comply with ASTM E2190. 1
 - Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or 2. magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
 - 3. Metal Edge Spacers: Aluminum, bent and soldered corners.
 - 4. Spacer Color: Black.
 - Edge Seal: 5.
 - Color: Black. а
 - 6. Purge interpane space with dry air, hermetically sealed.
- Type IG-1 Insulating Glass Units: Vision glass, double glazed. C.
 - Applications: Exterior glazing unless otherwise indicated. 1.
 - Space between lites filled with argon. 2.
 - Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum. 3. a. Tint: Clear.
 - b. Coating: Sunguard SNX, on #2 surface.
 - 4. Metal edge spacer.
 - Inboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum. 5. Tint: Clear. a.
 - 6. Total Thickness: 1 inch.
 - 7. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.23, nominal.
 - Visible Light Transmittance (VLT): 51% percent, nominal. 8.
 - Solar Heat Gain Coefficient (SHGC): 0.46, nominal. 9.
 - 10. Visible Light Reflectance, Outside: 14% percent, nominal.
 - 11. Glazing Method: Dry glazing method, gasket glazing.
- Type IG-2 Insulating Glass Units: Vision glass, double glazed. D.
 - Applications: Exterior Infill Glazing where existing AC Units are removed... 1
 - Space between lites filled with argon. 2.
 - Outboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum. 3.
 - Tint: Match existing adjacent glazing... a.
 - 4. Metal edge spacer.
 - Inboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum. 5.
 - Tint: Clear. a.
 - 6. Total Thickness: 1 inch Match existing.

2.05 GLAZING UNITS

- Type G-2 Monolithic Interior Vision Glazing: Α.
 - Applications: Interior glazing unless otherwise indicated. 1.
 - 2. Glass Type: Heat-strengthened float glass.
 - 3. Tint: Clear.
 - Thickness: 1/4 inch, nominal. 4.
 - Safety Glazing Certification: 16 CFR 1201 Category II. 5.
- Type G-3 Fire-Resistance-Rated Glazing: Type, thickness, and configuration of glazing Β. that contains flame, smoke, and blocks radiant heat, as required to achieve indicated firerating period exceeding 45 minutes.
 - Applications: 1.
 - a. Glazing in fire-rated door assembly.
 - h Other locations as indicated on drawings.
 - 2. Glass Type: Multi-laminate annealed glass with intumescent fire retardant interlayers.
 - Provide products listed by UL (DIR) and approved by authorities having jurisdiction. 3.
 - Safety Glazing Certification: 16 CFR 1201 Category II. 4
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- 5. Glazing Method: As required for fire rating.
- 6. Fire-Rating Period: As indicated on drawings.
- 7. Markings for Fire-Resistance-Rated Glazing Assemblies: Provide permanent markings on fire-resistance-rated glazing in compliance with authorities having jurisdiction and New York State Building Code.
 - a. "W" meets wall assembly criteria of ASTM E119 or UL 263 fire test standards.
 - b. "D" meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.
 - c. "H" meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire test standards.
 - d. "T" meets temperature rise of not more than 450 degrees F above ambient at end of 30 minutes fire exposure in accordance with NFPA 252, UL 10B, or UL 10C fire test standards.
 - e. "XXX" placeholder that represents fire-rating period, in minutes.
- 8. Manufacturers:
 - a. GGI General Glass International; Pyrobel: www.generalglass.com/#sle.
 - b. SAFTIFIRST, a division of O'Keeffe's Inc; SuperLite II-XL: www.safti.com/#sle.
 - c. SAFTIFIRST, a division of O'Keeffe's Inc; SuperLite II-XLM: www.safti.com/#sle.
 - d. Technical Glass Products; Pilkington Pyrostop 60: www.fireglass.com/#sle.
 - e. Vetrotech North America; Contraflam 60: www.vetrotechusa.com/#sle.
- C. Type G-5 Monolithic Safety Glazing: Non-fire-rated.
 - 1. Applications:
 - a. Glazed lites in doors, except fire doors.
 - b. Glazed sidelights to doors, except in fire-rated walls and partitions.
 - c. Other locations required by applicable federal, state, and local codes and regulations.
 - d. Other locations indicated on drawings.
 - 2. Glass Type: Fully tempered safety glass as specified.
 - 3. Tint: Clear.
 - 4. Thickness: 1/4 inch, nominal.

2.06 GLAZING COMPOUNDS

- A. Type GC-5 Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.
- B. Manufacturers:
 - 1. Dow Corning Corporation: www.dowcorning.com/construction/#sle.Dow Corning Corporation: www.dowcorning.com/construction/#sle.
 - 2. Pecora Corporation: www.pecora.com/#sle.
 - 3. Tremco Commercial Sealants & Waterproofing; Proglaze SSG: www.tremcosealants.com/#sle.
 - 4. Substitutions: See Section 016000 Product Requirements.

2.07 ACCESSORIES

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
 - 1. Width: As required for application.
 - 2. Thickness: As required for application.
 - 3. Spacer Rod Diameter: As required for application.

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- 4. Manufacturers:
 - a. Pecora Corporation; [____]: www.pecora.com/#sle.
 - b. Tremco Global Sealants; [____]: www.tremcosealants.com/#sle.
 - c. Substitutions: See Section 016000 Product Requirements.
- D. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.
- E. Glazing Clips: Manufacturer's standard type.

2.08 SOURCE QUALITY CONTROL

- A. See Section 014000 Quality Requirements, for additional requirements.
- B. Provide shop inspection and testing for Type [____] glass.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

- A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
- B. Verify that the minimum required face and edge clearances are being provided.
- C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.
- D. Verify that sealing between joints of glass framing members has been completed effectively.
- E. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

- A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.
- B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.
- C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.
- D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.
- E. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.
- F. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

- A. Application Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

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3.05 INSTALLATION - DRY GLAZING METHOD (TAPE AND GASKET SPLINE GLAZING)

- A. Application Exterior Glazed: Set glazing infills from the exterior of the building.
- B. Cut glazing tape to length; install on glazing pane. Seal corners by butting tape and sealing junctions with butyl sealant.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- D. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
- E. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.
- F. Carefully trim protruding tape with knife.

3.06 INSTALLATION - DRY GLAZING METHOD (TAPE AND TAPE)

- A. Application Interior Glazed: Set glazing infills from the interior of the building.
- B. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- D. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
- E. Place glazing tape on free perimeter of glazing in same manner described above.
- F. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- G. Carefully trim protruding tape with knife.

3.07 INSTALLATION - WET GLAZING METHOD (SEALANT AND SEALANT)

- A. Application Exterior Glazed: Set glazing infills from the exterior of the building.
- B. Place setting blocks at 1/4 points and install glazing pane or unit.
- C. Install removable stops with glazing centered in space by inserting spacer shims both sides at 24 inch intervals, 1/4 inch below sight line.
- D. Fill gaps between glazing and stops with [_____] type sealant to depth of bite on glazing, but not more than 3/8 inch below sight line to ensure full contact with glazing and continue the air and vapor seal.
- E. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.08 INSTALLATION - WET GLAZING METHOD (COMPOUND AND COMPOUND)

- A. Application Interior Glazed: Set glazing infills from the interior of the building.
- B. Install glazing resting on setting blocks. Install applied stop and center pane by use of spacer shims at 24 inch centers, kept 1/4 inch below sight line.
- C. Locate and secure glazing pane using glazers' clips.
- D. Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

3.09 INSTALLATION - WET/DRY GLAZING METHOD (PREFORMED TAPE AND SEALANT)

- A. Application Exterior Glazed: Set glazing infills from the exterior of the building.
- B. Cut glazing tape to length and set against permanent stops, 3/16 inch below sight line. Seal corners by butting tape and dabbing with butyl sealant.
- C. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
- D. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- E. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.

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- F. Install removable stops, with spacer strips inserted between glazing and applied stops 1/4 inch below sight lines.
 - 1. Place glazing tape on glazing pane of unit with tape flush with sight line.
- G. Fill gap between glazing and stop with [____] type sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch below sight line.
- H. Apply cap bead of [_____] type sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.10 INSTALLATION - WET/DRY GLAZING METHOD (TAPE AND SEALANT)

- A. Application Interior Glazed: Set glazing infills from the interior of the building.
- B. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- D. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
- E. Install removable stops, spacer shims inserted between glazing and applied stops at 24 inch intervals, 1/4 inch below sight line.
- F. Fill gaps between pane and applied stop with [____] type sealant to depth equal to bite on glazing, to uniform and level line.
- G. Carefully trim protruding tape with knife.

3.11 FIELD QUALITY CONTROL

- A. See Section 014000 Quality Requirements, for additional requirements.
- B. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
- C. Monitor and report installation procedures and unacceptable conditions.

3.12 CLEANING

- A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
- B. Remove non-permanent labels immediately after glazing installation is complete.
- C. Clean glass and adjacent surfaces after sealants are fully cured.
- D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.13 PROTECTION

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
- B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

Louvers

PART 1 GENERAL

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1.01 SECTION INCLUDES

A. Louvers, frames, and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 04200: Unit Masonry: Prepared exterior wall opening.
- B. Section 04201: Veneer Masonry: Prepared exterior wall opening.
- C. Section 072500 Weather Barriers: Sealing frames to weather barrier installed on adjacent construction.
- D. Section 076200 Sheet Metal Flashing and Trim.
- E. Section 079200 Joint Sealants: Sealing joints between frames and adjacent construction.
- F. Section 233100 HVAC Ducts and Casings: Ductwork attachment to louvers, and blank-off panels.

1.03 REFERENCE STANDARDS

- A. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- B. AMCA 500-L Laboratory Methods of Testing Louvers for Rating 2015.
- C. AMCA 511 Certified Ratings Program for Air Control Devices 2010.
- D. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2020.
- E. ASTM B221M Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) 2013.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data describing design characteristics, maximum recommended air velocity, design free area, materials and finishes and actual color samples.
- C. Shop Drawings: Indicate louver layout plan and elevations, opening and clearance dimensions, and tolerances; head, jamb and sill details; blade configuration, screens, blank-off areas required, and frames.
- D. Samples: Submit two samples 2 by 2 inches in size illustrating finish and color of exterior and interior surfaces.
- E. Test Reports: Independent agency reports showing compliance with specified performance criteria.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.

1.06 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer's warranty against distortion, metal degradation, and connection failures of louver components.
 - 1. Finish: Include twenty year coverage against degradation of exterior finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Louvers:
 - 1. Ruskin; Basis of Design: www.ruskin.com/#sle.
 - 2. Approved Equal.

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2.02 LOUVERS

- A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.
 - 1. Wind Load Resistance: Design to resist positive and negative wind load indicated on drawings without damage or permanent deformation.
 - 2. Intake Louvers: Design to allow maximum of 0.01 oz/sq ft water penetration at calculated intake design velocity based on design air flow and actual free area, when tested in accordance with AMCA 500-L.
 - 3. Drainable Blades: Continuous rain stop at front or rear of blade aligned with vertical gutter recessed into both jambs of frame.
 - 4. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.
- B. Stationary Louvers: Horizontal blade, extruded aluminum construction, with concealed intermediate mullions.
 - 1. Free Area: 54%, minimum.
 - 2. Blades: V-shaped, sight-proof, drainable
 - 3. Frame: 4 inches deep, channel profile; corner joints mitered and , with continuous recessed caulking channel each side.
 - 4. Aluminum Thickness: Frame 12 gauge, 0.0808 inch minimum; blades 12 gauge, 0.0808 inch minimum.
 - 5. Aluminum Finish: 70% Fluoropolymer; finish welded units after fabrication.

2.03 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

2.04 FINISHES

- A. Superior Performing Organic Coatings System: Manufacturer's standard multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin, and at least 80 percent of aluminum extrusion and panels surfaces having minimum total dry film thickness (DFT) of 1.2 mils, 0.0012 inch.
- B. Color: As selected from manufacturer's standard colors.

2.05 ACCESSORIES

- A. Blank-Off Panels: Same material as louver, painted black on exterior side; provide where duct connected to louver is smaller than louver frame, sealing off louver area outside duct.
- B. Blank-Off Panels: Specified in Section 233100.
- C. Screens: Frame of same material as louver, with reinforced corners; removable, screw attached; installed on inside face of louver frame.
- D. Insect Screen: 18 x 16 size aluminum mesh.
- E. Head and Sill Flashings: See Section 076200.
- F. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that prepared openings and flashings are ready to receive this work and opening dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install louver assembly in accordance with manufacturer's instructions.
- B. Coordinate with installation of flashings by others.
- C. Install louvers level and plumb.
- D. Set sill members and sill flashing in continuous bead of sealant.
- E. Align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior.

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- F. Secure louver frames in openings with concealed fasteners.
- G. Coordinate with installation of mechanical ductwork.

3.03 CLEANING

- A. Strip protective finish coverings.
- B. Clean surfaces and components.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Performance criteria for gypsum board assemblies.
- B. Acoustic insulation.
- C. Gypsum sheathing.
- D. Cementitious backing board.
- E. Gypsum wallboard.
- F. Joint treatment and accessories.
- G. Water-resistive barrier over exterior wall sheathing.

1.02 RELATED REQUIREMENTS

- A. Section 054000 Cold-Formed Metal Framing: Structural steel stud framing.
- B. Section 061000 Rough Carpentry: Wood blocking product and execution requirements.
- C. Section 072100 Thermal Insulation : Acoustic insulation.
- D. Section 072500 Weather Barriers: Water-resistive barrier over sheathing.
- E. Section 078400 Firestopping: Top-of-wall assemblies at fire-resistance-rated walls.
- F. Section 079200 Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.
- G. Section 092216 Non-Structural Metal Framing .

1.03 REFERENCE STANDARDS

- A. ANSI A108.11 American National Standard Specifications for Interior Installation of Cementitious Backer Units 2018.
- B. ANSI A118.9 American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units 1999 (Reaffirmed 2016).
- C. ASTM C475/C475M Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board 2017.
- D. ASTM C514 Standard Specification for Nails for the Application of Gypsum Board 2004 (Reapproved 2020).
- E. ASTM C645 Standard Specification for Nonstructural Steel Framing Members 2018.
- F. ASTM C665 Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2017.
- G. ASTM C754 Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products 2020.
- H. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board 2020.
- I. ASTM C954 Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness 2018.
- J. ASTM C1002 Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs 2020.
- K. ASTM C1047 Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base 2019.
- L. ASTM C1177/C1177M Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing 2017.
- M. ASTM C1178/C1178M Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel 2018.
- N. ASTM C1278/C1278M Standard Specification for Fiber-Reinforced Gypsum Panel 2017.

- O. ASTM C1280 Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing 2018.
- P. ASTM C1288 Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets 2017.
- Q. ASTM C1325 Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units 2019.
- R. ASTM C1396/C1396M Standard Specification for Gypsum Board 2017.
- S. ASTM C1629/C1629M Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels 2019.
- T. ASTM C1658/C1658M Standard Specification for Glass Mat Gypsum Panels 2019, with Ediorial Revision (2020).
- U. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2016.
- V. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials 2020.
- W. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- X. ASTM E413 Classification for Rating Sound Insulation 2016.
- Y. ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi 2015.
- Z. GA-216 Application and Finishing of Gypsum Panel Products 2016.
- AA. GA-226 Application of Gypsum Board to Form Curved Surfaces; Gypsum Association 2016.
- BB. UL (FRD) Fire Resistance Directory Current Edition.
- CC. UL 325 Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements for submittal procedures.
- B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.
- C. Product Data: Provide data on gypsum board, accessories, and joint finishing system.
- D. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Fire-Resistance-Rated Assemblies: Provide completed assemblies as indicated on drawings
 - 1. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL (FRD).

2.02 BOARD MATERIALS

- A. Manufacturers Gypsum-Based Board:
 - 1. American Gypsum Company: www.americangypsum.com/#sle.
 - 2. CertainTeed Corporation: www.certainteed.com/#sle.
 - 3. Georgia-Pacific Gypsum: www.gpgypsum.com/#sle.
 - 4. National Gypsum Company: www.nationalgypsum.com/#sle.
 - 5. USG Corporation: www.usg.com/#sle.
 - 6. Substitutions: See Section 016000 Product Requirements.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.

- 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
- 2. Glass mat faced gypsum panels, as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
- 3. Unfaced fiber-reinforced gypsum panels as defined in ASTM C1278/C1278M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
- 4. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
 - b. Mold resistant board is required where indicated on drawings..
- 5. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
- 6. Thickness:
 - a. Vertical Surfaces: .
 - b. Ceilings: .
 - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
- 7. Paper-Faced Products:
 - a. American Gypsum Company; LightRoc Gypsum Wallboard: www.americangypsum.com/#sle.
 - b. American Gypsum Company; FireBloc Type X Gypsum Wallboard: www.americangypsum.com/#sle.
 - c. American Gypsum Company; FireBloc Type C Gypsum Wallboard: www.americangypsum.com/#sle.
 - d. CertainTeed Corporation; Type C Drywall: www.certainteed.com/#sle.
 - e. CertainTeed Corporation; Type X Drywall: www.certainteed.com/#sle.
 - f. Georgia-Pacific Gypsum; ToughRock: www.gpgypsum.com/#sle.
 - g. Georgia-Pacific Gypsum; ToughRock Fireguard X: www.gpgypsum.com/#sle.
 - h. Georgia-Pacific Gypsum; ToughRock Fireguard C: www.gpgypsum.com/#sle.
 - i. National Gypsum Company; Gold Bond BRAND Fire-Shield Gypsum Board: www.nationalgypsum.com/#sle.
 - j. USG Corporation; USG Sheetrock Brand EcoSmart Panels Firecode X: www.usg.com/#sle.
 - k. USG Corporation; USG Sheetrock Brand Firecode X Panels: www.usg.com/#sle.
 - I. [____].
 - m. Substitutions: See Section 016000 Product Requirements.
- 8. Mold Resistant Paper Faced Products:
 - a. American Gypsum Company; M-Bloc: www.americangypsum.com/#sle.
 - b. American Gypsum Company; M-Bloc Type X: www.americangypsum.com/#sle.
 - c. American Gypsum Company; M-Bloc Type C: www.americangypsum.com/#sle.
 - d. CertainTeed Corporation; M2Tech 5/8" Type C Moisture & Mold Resistant Drywall: www.certainteed.com/#sle.
 - e. CertainTeed Corporation; M2Tech 5/8" Type X Moisture & Mold Resistant Drywall: www.certainteed.com/#sle.
 - f. Georgia-Pacific Gypsum; ToughRock Mold-Guard: www.gpgypsum.com/#sle.
 - g. Georgia-Pacific Gypsum; ToughRock Fireguard X Mold-Guard: www.gpgypsum.com/#sle.
 - h. National Gypsum Company; Gold Bond XP Gypsum Board: www.nationalgypsum.com/#sle.
 - USG Corporation; USG Sheetrock Brand EcoSmart Panels Mold Tough Firecode X: www.usg.com/#sle.
 - j. Substitutions: See Section 016000 Product Requirements.
- 9. Glass Mat Faced Products:
 - a. Georgia-Pacific Gypsum; DensArmor Plus: www.gpgypsum.com/#sle.

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- b. Georgia-Pacific Gypsum; DensArmor Plus Fireguard C: www.gpgypsum.com/#sle.
- c. National Gypsum Company; Gold Bond eXP Interior Extreme Gypsum Panel: www.nationalgypsum.com/#sle.
- d. National Gypsum Company; Gold Bond eXP Fire-Shield Interior Extreme Gypsum Panel: www.nationalgypsum.com/#sle.
- e. USG Corporation; USG Sheetrock Brand Glass-Mat Panels Mold Tough.
- f. Substitutions: See Section 016000 Product Requirements.
- C. Backing Board For Wet Areas: One of the following products:
 - 1. Application: Surfaces behind tile in wet areas including tub and shower surrounds, shower ceilings, and where indicated on drrawings..
 - 2. Application: Horizontal surfaces behind tile in wet areas including countertops and where indicated on drawings.
 - 3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 4. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
 - a. Thickness: 1/2 inch (12.7 mm).
 - b. Products:
 - 1) National Gypsum Company; PermaBase Cement Board: www.nationalgypsum.com/#sle.
 - 2) USG Corporation; [____]: www.usg.com/#sle.
 - 3) Substitutions: See Section 016000 Product Requirements.
- D. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
 - 1. Application: Vertical surfaces behind thinset tile, except in wet areas.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 3. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
 - 4. Type: Regular and Type X, in locations indicated.
 - 5. Type X Thickness: As indicated for partion type
 - 6. Regular Board Thickness: As indicated for partion type.
 - 7. Edges: Tapered.
 - 8. Products:
 - a. American Gypsum Company; M-Bloc: www.americangypsum.com/#sle.
 - b. American Gypsum Company; M-Bloc Type X: www.americangypsum.com/#sle.
 - c. Georgia-Pacific Gypsum; ToughRock Mold-Guard Gypsum Board: www.gpgypsum.com/#sle.
 - d. Georgia-Pacific Gypsum; DensArmor Plus: www.gpgypsum.com/#sle.
 - e. National Gypsum Company; Gold Bond XP Gypsum Board:
 - www.nationalgypsum.com/#sle.
 - f. Substitutions: See Section 016000 Product Requirements.
- E. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Ceilings, unless otherwise indicated.
 - 2. Thickness: 1/2 inch (13 mm).
 - 3. Edges: Tapered.
 - 4. Products:
 - a. CertainTeed Corporation; Interior Ceiling Drywall: www.certainteed.com/#sle.
 - b. Georgia-Pacific Gypsum; ToughRock Span 24 Ceiling Board: www.gpgypsum.com/#sle.
 - c. USG Corporation; 1/2 Inch Sheetrock Brand UltraLight Panels: www.usg.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- F. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
 - 1. Application: Exterior sheathing, unless otherwise indicated.

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- 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
- 3. Fungal Resistance: No fungal growth when tested in accordance with ASTM G21.
- 4. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
- 5. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
- 6. Core Type: Regular and Type X, as indicated.
- 7. Type X Thickness: 5/8 inch (16 mm).
- 8. Regular Board Thickness: 5/8 inch (16 mm).
- 9. Edges: Square.
- 10. Glass Mat Faced Products:
 - a. American Gypsum Company; M-Glass Exterior Sheathing Type X: www.americangypsum.com/#sle.
 - b. CertainTeed Corporation; GlasRoc Type X Exterior Sheathing: www.certainteed.com/#sle.
 - c. Georgia-Pacific Gypsum; DensGlass Sheathing: www.gpgypsum.com/#sle.
 - d. Georgia-Pacific Gypsum; DensGlass Fireguard Sheathing: www.gpgypsum.com/#sle.
 - e. National Gypsum Company; Gold Bond eXP Sheathing: www.nationalgypsum.com/#sle.
 - f. USG Corporation; USG Securock Brand Ultralight Glass-Mat Sheathing: www.usg.com/#sle.
 - g. USG Corporation; USG Securock Brand Ultralight Glass-Mat Sheathing Firecode X: www.usg.com/#sle.
 - h. Substitutions: See Section 016000 Product Requirements.

2.03 GYPSUM WALLBOARD ACCESSORIES

- A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: To match partition thickness.
- B. Sound Isolation Tape: Elastomeric foam tape for sound decoupling.
 - 1. Surface Burning Characteristics: Provide assemblies with flame spread index of 75 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
 - 2. Tape Thickness: 1/4 inch (6 mm).
 - 3. Products:
 - a. Armacell LLC; ArmaSound MTD: www.armacell.us/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- C. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
 - 1. Products:
 - a. Franklin International, Inc; Titebond GREENchoice Professional Acoustical Smoke and Sound Sealant: www.titebond.com/#sle.
 - b. Liquid Nails, a brand of PPG Architectural Coatings; [____]: www.liquidnails.com/#sle.
 - c. Specified Technologies Inc; Smoke N Sound Acoustical Sealant: www.stifirestop.com/#sle.
 - d. Substitutions: See Section 016000 Product Requirements.
- D. Water-Resistive Barrier: As specified in Section 072500.
- E. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
 - 1. Types: As detailed or required for finished appearance.
 - 2. Special Shapes: In addition to conventional corner bead and control joints, provide Ubead at exposed panel edges.
 - 3. Products:
 - a. Same manufacturer as framing materials.
 - b. Phillips Manufacturing Co: www.phillipsmfg.com/#sle.

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- Trim-tex, Inc: www.trim-tex.com/#sle. C.
- d. Substitutions: See Section 016000 - Product Requirements.
- Decorative Metal Trim: F.
 - Material: Extruded aluminum alloy 6063-T5 temper. 1.
 - 2. Finish: Anodized, clear.
 - Type: Profile as selected from manufacturer's standard range. 3
 - 4. Corner Trim:
 - Products: a.
 - 1) As indicated on drawings...
 - 2) Schluter Systems.
 - 3) Substitutions: See Section 016000 - Product Requirements.
 - **Reveal Trim:** 5.
 - Products: а
 - As indicated on drawings ... 1)
 - 2) Schluter Systems.
 - 3) Substitutions: See Section 016000 - Product Requirements.
 - 6. Molding:
 - Products: a.
 - 1) As indicated on Drawings.
 - 2) Schluter Systems.
 - Substitutions: See Section 016000 Product Requirements. 3)
- G. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
 - Fiberglass Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners, 1 except as otherwise indicated.
 - 2. Paper Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
 - 3. Products:
 - Continental Building Products; [____]: www.continental-bp.com/#sle. a.
 - Substitutions: See Section 016000 Product Requirements. b.
 - 4. Joint Compound: Drying type, vinyl-based, ready-mixed.
 - Products: а
 - CertainTeed Corporation; Extreme All-Purpose Joint Compound: 1) www.certainteed.com/#sle.
 - 2) Continental Building Products; []: www.continental-bp.com/#sle.
 - Substitutions: See Section 016000 Product Requirements. 3)
 - Joint Compound: Setting type, field-mixed. 5.
- H. Finishing Compound: Surface coat and primer, takes the place of skim coating. 1
 - Products:
 - CertainTeed Corporation; Quick Prep Plus Interior Prep Coat: а
 - www.certainteed.com/#sle.
 - Substitutions: See Section 016000 Product Requirements. h
- High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, Ι. designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.
 - 1. Products:
 - CertainTeed Corporation; Level V Wall and Ceiling Primer/Surfacer with M2Tech: a. www.certainteed.com/#sle.
 - USG Corporation: USG Sheetrock Brand Tuff-Hide Primer-Surfacer: b. www.usg.com/#sle.
 - Substitutions: See Section 016000 Product Requirements. C.
- Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than J. 0.033 inches (0.84 mm) in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
- Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 K. inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

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- L. Nails for Attachment to Wood Members: ASTM C514.
- M. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Sound Isolation Tape: Apply to vertical studs and top and bottom tracks/runners in accordance with manufacturer's instructions.
- C. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 - 1. Place continuous bead at perimeter of each layer of gypsum board.
 - 2. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.03 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
 - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Double-Layer, Nonrated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
- D. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- E. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with waterresistant sealant.
- F. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
 - 1. Seal joints, cut edges, and holes with water-resistant sealant.
 - 2. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.
- G. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.
- H. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.
- I. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For nonrated assemblies, install as follows:
- J. Curved Surfaces: Apply gypsum board to curved substrates in accordance with GA-226.

3.04 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
 1. Not more than 30 feet (10 meters) apart on walls and ceilings over 50 feet (16 meters) long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

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D. Decorative Trim: Install at locations shown on drawings and in accordance with manufacturer's instructions.

3.05 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.
- B. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
 - 2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 3. Level 3: Walls to receive textured wall finish.
 - 4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
 - 5. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).
- E. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.
- F. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.06 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Metal partition, ceiling, and soffit framing.
- B. Framing accessories.

1.02 RELATED REQUIREMENTS

- A. Section 054000 Cold-Formed Metal Framing: Requirements for structural, load-bearing, metal stud framing and exterior wall stud framing.
- B. Section 055000 Metal Fabrications : Metal fabrications attached to stud framing.
- C. Section 061000 Rough Carpentry: Wood blocking within stud framing.
- D. Section 079200 Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.
- E. Section 083100 Access Doors and Panels.
- F. Section 092116 Gypsum Board Assemblies: Execution requirements for anchors for attaching work of this section.

1.03 REFERENCE STANDARDS

- A. ASTM A36/A36M Standard Specification for Carbon Structural Steel 2014.
- B. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- C. ASTM A1003/A1003M Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members 2015.
- D. ASTM C645 Standard Specification for Nonstructural Steel Framing Members 2018.
- E. ASTM C754 Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products 2020.
- F. ASTM C1002 Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs 2020.
- G. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- H. ASTM E413 Classification for Rating Sound Insulation 2016.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements for submittal procedures.
- B. Shop Drawings:
 - 1. Indicate prefabricated work, component details, stud layout, framed openings, anchorage to structure, acoustic details, type and location of fasteners, accessories, and items of other related work.
 - 2. Describe method for securing studs to tracks, splicing, and for blocking and reinforcement of framing connections.
- C. Product Data: Provide data describing framing member materials and finish, product criteria, load charts, and limitations.
- D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Framing, Connectors, and Accessories:
 - 1. ClarkDietrich; [____]: www.clarkdietrich.com/#sle.
 - 2. Marino; [____]: www.marinoware.com/#sle.
 - 3. Substitutions: See Section 016000 Product Requirements.

2.02 FRAMING MATERIALS

- A. Fire-Resistance-Rated Assemblies: Comply with applicable code and as indicated on drawings.
- B. Loadbearing Studs: As specified in Section 054000.
- C. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf (L/240 at 240 Pa).
 - 1. Studs: C shaped with knurled or embossed faces.
 - a. Products:
 - 1) Super Stud Building Products, Inc; The EDGE: www.buysuperstud.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
 - 2. Runners: U shaped, sized to match studs.
 - 3. Ceiling Channels: C shaped.
 - 4. Furring: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).
 - 5. Resilient Furring Channels: Single or double leg configuration; 1/2 inch (12 mm) channel depth.
 - a. Products:
 - 1) ClarkDietrich; RC Deluxe Resilient Channel: www.clarkdietrich.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
- D. Partition Head to Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and braced with continuous bridging on both sides.
- E. Deflection and Firestop Track: Intumescent strip factory-applied to track flanges expands when exposed to heat or flames to provide a perimeter joint seal.
 - 1. Products:
 - a. ClarkDietrich; BlazeFrame Firestop Deflection Track: www.clarkdietrich.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- F. Preformed Top Track Firestop Seal:
 - 1. Provide components UL-listed for use in UL-listed fire-resistance-rated head of partition joint systems indicated on drawings.
 - 2. Products:
 - a. Hilti, Inc; Top Track Seal CFS TTS: www.us.hilti.com/#sle.
 - b. Specified Technologies Inc; SpeedFlex TTG Track Top Gasket: www.stfirestop.com/#sle.
 - c. Substitutions: See Section 016000 Product Requirements.
- G. Non-Loadbearing Framing Accessories:
 - 1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
 - 2. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
 - a. Materials: ASTM A36/A36M formed sheet steel support member with factorywelded ASTM A1003/A1003M steel plate base.
 - b. Height: 35-3/4 inches (908 mm).
 - c. Products:
 - 1) ClarkDietrich; Pony Wall (PW): www.clarkdietrich.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
 - 3. Framing Connectors: ASTM A653/A653M G90 galvanized steel clips; secures cold rolled channel to wall studs for lateral bracing.

- a. Products:
 - 1) ClarkDietrich; FastBridge Clip (FB33): www.clarkdietrich.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
- Flexible Wood Backing: Fire-retardant-treated wood with sheet steel connectors.
 a. Products:
 - 1) ClarkDietrich; Danback: www.clarkdietrich.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
 - 5. Sheet Metal Backing: 0.036 inch (0.9 mm) thick, galvanized.
- 6. Fasteners: ASTM C1002 self-piercing tapping screws.
- 7. Anchorage Devices: Powder actuated.

2.03 FABRICATION

- A. Fabricate assemblies of framed sections to sizes and profiles required.
- B. Fit, reinforce, and brace framing members to suit design requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that rough-in utilities are in proper location.

3.02 INSTALLATION OF STUD FRAMING

- A. Comply with requirements of ASTM C754.
- B. Extend partition framing to structure where indicated and to ceiling in other locations.
- C. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
- D. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs as indicated.
- E. Align and secure top and bottom runners at 16 inches ([___] mm) on center.
- F. At partitions indicated with an acoustic rating:
 - 1. Provide components and install as required to produce STC ratings as indicated, based on published tests by manufacturer conducted in accordance with ASTM E90 with STC rating calculated in accordance with ASTM E413.
 - 2. Place one bead of acoustic sealant between runners and substrate, studs and adjacent construction.
 - 3. Place one bead of acoustic sealant between studs and adjacent vertical surfaces.
 - 4. Sound Isolation Tape: Apply to vertical studs and top and bottom tracks/runners in accordance with manufacturer's instructions.
- G. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- H. Align stud web openings horizontally.
- I. Secure studs to tracks using fastener method. Do not weld.
- J. Fabricate corners using a minimum of three studs.
- K. Install double studs at wall openings, door and window jambs, not more than 2 inches (50 mm) from each side of openings.
- L. Brace stud framing system rigid.
- M. Coordinate erection of studs with requirements of door frames; install supports and attachments.
- N. Coordinate installation of bucks, anchors, and blocking with electrical, mechanical, and other work to be placed within or behind stud framing.
- O. Blocking: Use wood blocking secured to studs. Provide blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware, and opening frames.
- P. Furring: Install at spacing and locations shown on drawings. Lap splices a minimum of 6 inches (150 mm).

Q. Use sheet metal backing for reinforcement where indicated on drawings..

3.03 CEILING AND SOFFIT FRAMING

- A. Comply with requirements of ASTM C754.
- B. Install furring after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.
- C. Install furring independent of walls, columns, and above-ceiling work.
- D. Securely anchor hangers to structural members or embed them in structural slab. Space hangers as required to limit deflection to criteria indicated. Use rigid hangers at exterior soffits.
- E. Space main carrying channels at maximum 72 inch (1 800 mm) on center, and not more than 6 inches (150 mm) from wall surfaces. Lap splice securely.
- F. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.
- G. Place furring channels perpendicular to carrying channels, not more than 2 inches (50 mm) from perimeter walls, and rigidly secure. Lap splices securely.
- H. Reinforce openings in suspension system that interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 24 inches (600 mm) past each opening.
- I. Laterally brace suspension system.

3.04 TOLERANCES

- A. Maximum Variation From True Position: 1/8 inch in 10 feet (3 mm in 3 m).
- B. Maximum Variation From Plumb: 1/8 inch in 10 feet (3 mm in 3 m).

END OF SECTION

SECTION 093000 TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Cementitious backer board as tile substrate.
- D. Stone thresholds.
- E. Ceramic accessories.
- F. Ceramic trim.
- G. Non-ceramic trim.

1.02 RELATED REQUIREMENTS

- A. Section 079200 Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- B. Section 090561 Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.
- C. Section 224000 Plumbing Fixtures: Shower receptor.

1.03 REFERENCE STANDARDS

- A. ANSI A108/A118/A136 American National Standard Specifications for the Installation of Ceramic Tile (Compendium) 2019.
- B. ANSI A108.1a American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar 2017.
- C. ANSI A108.1b American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar 2017.
- D. ANSI A108.1c Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement 1999 (Reaffirmed 2016).
- E. ANSI A108.2 American National Standard General Requirements: Materials, Environmental and Workmanship 2019.
- F. ANSI A108.4 American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive 2009 (Revised).
- G. ANSI A108.5 American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar 1999 (Reaffirmed 2010).
- ANSI A108.6 American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy 1999 (Reaffirmed 2010).
- I. ANSI A108.8 American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout 1999 (Reaffirmed 2010).
- J. ANSI A108.9 American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout 1999 (Reaffirmed 2010).
- K. ANSI A108.10 American National Standard Specifications for Installation of Grout in Tilework 2017.
- L. ANSI A108.11 American National Standard Specifications for Interior Installation of Cementitious Backer Units 2018.
- M. ANSI A108.12 American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar 1999 (Reaffirmed 2010).

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- N. ANSI A108.13 American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone 2005 (Reaffirmed 2016).
- O. ANSI A108.19 American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar 2017.
- P. ANSI A118.1 American National Standard Specifications for Dry-Set Cement Mortar 2012 (Revised).
- Q. ANSI A118.3 American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive 2013 (Revised).
- R. ANSI A118.4 American National Standard Specifications for Modified Dry-Set Cement Mortar 2012 (Revised).
- S. ANSI A118.5 American National Standard Specifications for Chemical Resistant Furan Mortars and Grouts for Tile Installation 1999 (Reaffirmed 2016).
- T. ANSI A118.6 American National Standard Specifications for Standard Cement Grouts for Tile Installation 2010 (Reaffirmed 2016).
- U. ANSI A118.7 American National Standard Specifications for High Performance Cement Grouts for Tile Installation 2010 (Reaffirmed 2016).
- V. ANSI A118.9 American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units 1999 (Reaffirmed 2016).
- W. ANSI A118.10 American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation 2014.
- X. ANSI A118.12 American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation 2014.
- Y. ANSI A118.13 American National Standard Specifications for Bonded Sound Reduction Membranes for Thin-Set Ceramic Tile Installation 2014.
- Z. ANSI A118.15 American National Standard Specifications for Improved Modified Dry-Set Cement Mortar 2012.
- AA. ANSI A136.1 American National Standard for Organic Adhesives for Installation of Ceramic Tile 2008 (Reaffirmed 2013).
- BB. ANSI A137.1 American National Standard Specifications for Ceramic Tile 2019.
- CC. ANSI A137.2 American National Standard Specifications for Glass Tile 2013.
- DD. ANSI A137.3 American National Standard Specifications for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs 2017.
- EE. ASTM C33/C33M Standard Specification for Concrete Aggregates 2018.
- FF. ASTM C150/C150M Standard Specification for Portland Cement 2020.
- GG. ASTM C373 Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products 2018.
- HH. ASTM C847 Standard Specification for Metal Lath 2018.
- II. ASTM C1178/C1178M Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel 2018.
- JJ. ASTM D4068 Standard Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane 2017.
- KK. ASTM E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine 2009, with Editorial Revision (2016).

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- LL. ASTM E2179 Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors 2021.
- MM. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring 2019, with Editorial Revision (2020).
- NN. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride 2016a.
- OO. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes 2019a.
- PP. ICC-ES AC380 Acceptance Criteria for Termite Physical Barrier Systems 2014, with Editorial Revision (2017).
- QQ. TCNA (HB) Handbook for Ceramic, Glass, and Stone Tile Installation 2019.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by affected installers.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Samples: Full-size samples of each type of trim and accessory for each color and finish required.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Master Grade Certificate: Submit for each type of tile, signed by the tile manufacturer and tile installer.
- G. Installer's Qualification Statement:
 - 1. Submit documentation of National Tile Contractors Association (NTCA) or Tile Contractors' Association of America (TCAA) accreditation.
 - 2. Submit documentation of completion of apprenticeship and certification programs.
 - 3. Submit documentation of Natural Stone Institute Accreditation.
- H. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Tile: 5 percent of each size, color, and surface finish combination, but not less than 5 of each type.

1.06 QUALITY ASSURANCE

- A. Maintain one copy of the ANSI A108/A118/A136 and the current TCNA (HB) on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.
- C. Installer Qualifications:
 - 1. Company specializing in performing tile installation, with minimum of five years of documented experience.
 - a. Accredited Five-Star member of the National Tile Contractors Association (NTCA) or Trowel of Excellence member of the Tile Contractors' Association of America (TCAA).

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

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1.08 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature above 50 degrees F and below 100 degrees F during installation and curing of setting materials.

PART 2 PRODUCTS

2.01 TILE

- A. Refer to Interior Drawings for Manufacturer, Product and Color..
- B. Substitutions: See Section 016000 Product Requirements.
- C. Ceramic Mosaic Tile, Type TF-1: ANSI A137.1 standard grade.
 - 1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
 - 2. Size: 2 by 2 inch, nominal.
 - 3. Shape: Square.
 - 4. Edges: Cushioned.
 - 5. Surface Finish: Unglazed.
 - 6. Color(s): As indicated on drawings.
 - 7. Mounted Sheet Size: 12 by 24 inches.
 - 8. Trim Units: Matching bead, cove, and surface bullnose shapes in sizes coordinated with field tile.
 - Products: As indicated on Interiors Drawings.
 a. Substitutions: See Section 016000 Product Requirements.
- D. Glazed Wall Tile, Type TW-1, TW-2, TW-3, TB-1: ANSI A137.1 standard grade.
 - 1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
 - 2. Size: 3 by 6 inch, nominal.
 - 3. Edges: Cushioned.
 - 4. Surface Finish: As indicated on Interiors Drawings.
 - 5. Color(s): As indicated on drawings.
 - 6. Trim Units: Matching bead, bullnose, cove, and base shapes in sizes coordinated with field tile.
 - Products: As indicated on Interiors Drawings.
 a. Substitutions: See Section 016000 Product Requirements.

2.02 TRIM AND ACCESSORIES

- A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.
- B. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
 - 1. Applications: Where indicated on Interior Drawings.
 - a. Open Edges: Bullnose.
 - b. Inside Corners: Jointed.
 - c. Floor to Wall Joints: Cove base.
 - 2. Manufacturers: Same as for tile.
- C. Non-Ceramic Trim: Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
 - 1. Applications: As indicated on Interior Drawings, including but not limited to the following:
 - a. Open edges of wall tile.
 - b. Open edges of floor tile.
 - c. Wall corners, outside and inside.
 - d. Transition between floor finishes of different heights.
 - e. Thresholds at door openings.
 - f. Expansion and control joints, floor and wall.
 - g. Floor to wall joints.
 - h. Borders and other trim as indicated on drawings.
 - 2. Manufacturers:
 - a. Schluter-Systems: www.schluter.com/#sle.

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- b. Substitutions: See Section 016000 Product Requirements.
- D. Thresholds: 4 inches wide by full width of wall or frame opening; beveled edge on both long edges; without holes, cracks, or open seams.
 - 1. Thickness: 1/2 inch.
 - 2. Material: Marble, honed finish.
 - 3. Material: Solid surface acrylic resin, mineral filler, and pigments; non-porous, color and pattern consistent throughout thickness.
 - 4. Material: Artificial stone tile; 93 percent quartz aggregate, resin, color pigments.
 - 5. Color and Pattern: As indicated on drawings.
 - 6. Applications: As inidicated on Interior Drawings.

2.03 SETTING MATERIALS

- A. Provide setting and grout materials from same manufacturer.
- B. Manufacturers:
 - 1. LATICRETE International, Inc; [____]: www.laticrete.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- C. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
 - 1. Applications: Use this type of bond coatd for all products larger than 15".
 - 2. Products:
 - a. LATICRETE International, Inc; 257 TITANIUM: www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- D. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
 - 1. Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.
 - 2. Products:
 - a. LATICRETE International, Inc; 257 TITANIUM: www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- E. Improved Latex-Portland Cement Mortar Bond Coat: ANSI A118.15.
 - 1. Applications: Use this type of bond coat where Large and Heavy Tile (LHT) mortar is indicated.
 - 2. Products:
 - a. LATICRETE International, Inc; MULTIMAX LITE: www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- F. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.
 - 1. Applications: Where indicated on drawings.
 - 2. Products:
 - a. LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive:
 - www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- G. Mortar Bed Materials: Pre-packaged mix of Portland cement, sand, latex additive, and water.
 - 1. Products:
 - a. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed: www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.

2.04 GROUTS

- A. Provide setting and grout materials from same manufacturer.
- B. Manufacturers:
 - 1. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.
 - 2. Substitutions: See Section 016000 Product Requirements.
- C. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 - 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.

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- 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
- 3. Color(s): As indicated on drawings.
- 4. Products:
 - a. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- D. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
 - 1. Applications: Where indicated on Interior Drawings.
 - 2. Color(s): As indicated on drawings.
 - 3. Products:
 - a. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.

2.05 MAINTENANCE MATERIALS

- A. Tile Sealant: Gunnable, silicone, siliconized acrylic, or urethane sealant; moisture and mildew resistant type.
 - 1. Applications: Between tile and plumbing fixtures.
 - 2. Color(s): As selected by Architect from manufacturer's full line.
 - 3. Products:
 - a. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.

2.06 ACCESSORY MATERIALS

- A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
 - 1. Crack Resistance: No failure at 1/8 inch gap, minimum.
 - 2. Fluid or Trowel Applied Type:
 - a. Thickness: Mils as per manufacturer..
 - b. Products:
 - 1) LATICRETE International, Inc; LATICRETE Blue 92 Anti-Fracture Membrane: www.laticrete.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
- B. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
 - 1. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
 - 2. Fluid or Trowel Applied Type:
 - a. Thickness: Per Manufacturer mils, minimum, dry film thickness.
 - b. Products:
 - 1) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.
 - 2) Substitutions: See Section 016000 Product Requirements.
- C. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 1/2 inch thick; 2 inch wide coated glass fiber tape for joints and corners.
 - 1. Products:
 - a. Custom Building Products; WonderBoard Lite Backerboard: www.custombuildingproducts.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

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- C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
 - 1. Test as Follows:
 - a. Alkalinity (pH): ASTM F710.
 - b. Internal Relative Humidity: ASTM F2170.
 - c. Moisture Vapor Emission: ASTM F1869.
 - 2. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.
 - 3. Follow moisture and alkalinity remediation procedures in Section 090561.
- E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.
- E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.03 INSTALLATION - GENERAL

- A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.19, manufacturer's instructions, and current TCNA (HB) recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install ceramic accessories rigidly in prepared openings.
- G. Install non-ceramic trim in accordance with manufacturer's instructions.
- H. Install thresholds where indicated.
- I. Sound tile after setting. Replace hollow sounding units.
- J. Keep control and expansion joints free of mortar, grout, and adhesive.
- K. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- L. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- M. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.
- N. Install movement joints in accordance with TCNA (HB) Method EJ171F.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dryset or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
 - Use uncoupling membrane under all tile unless other underlayment is indicated.
 Where epoxy bond coat and grout are indicated, install in accordance with TCNA (HB)
 - Method F131.Where epoxy or furan grout is indicated, but not epoxy or furan bond coat, install in accordance with TCNA (HB) Method F115.

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B. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

3.05 INSTALLATION - WALL TILE

- A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244, using membrane at toilet rooms.
- B. Over gypsum wallboard on wood or metal studs install in accordance with TCNA (HB) Method W243, thin-set with dry-set or latex-Portland cement bond coat, unless otherwise indicated.
- C. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.
- D. Install movement joints in accordance with TCNA (HB) Method EJ171F.

3.06 CLEANING

A. Clean tile and grout surfaces.

3.07 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 095100 ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

1.02 RELATED REQUIREMENTS

- A. Section 053100 Steel Decking: Placement of special anchors or inserts for suspension system.
- B. Section 211300 Fire-Suppression Sprinkler Systems: Sprinkler heads in ceiling system.
- C. Section 233700 Air Outlets and Inlets: Air diffusion devices in ceiling.
- D. Section 265100 Interior Lighting: Light fixtures in ceiling system.
- E. Section 275116 Public Address Systems: Speakers in ceiling system.
- F. Section 284600 Fire Detection and Alarm: Fire alarm components in ceiling system.

1.03 REFERENCE STANDARDS

- A. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- B. ASTM C635/C635M Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings 2017.
- C. ASTM C636/C636M Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels 2013.
- D. ASTM E580/E580M Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions 2020.
- E. ASTM E1264 Standard Classification for Acoustical Ceiling Products 2019.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on suspension system components and acoustical units.
- C. Evaluation Service Reports: Show compliance with specified requirements.
- D. Samples: Submit two samples 4 by 4 inch in size illustrating material, edge condition and finish of acoustical units.
- E. Samples: Submit two samples each, 4 inches long, of suspension system main runner, cross runner, and perimeter molding.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 QUALITY ASSURANCE

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acoustic Tiles/Panels: As indicted on Interiors Drawings and Finish Schedule.
 1. Substitutions: See Section 016000 Product Requirements.
- B. Suspension Systems: As indicated on Interiors Drawings and Finish Schedule.
 1. Substitutions: See Section 016000 Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

2.03 ACOUSTICAL UNITS

- A. Acoustical Units General: ASTM E1264, Class A.
- B. Acoustical Panels: (ACT-1) Mineral fiber with membrane-faced overlay, with the following characteristics:
 - 1. Classification: ASTM E1264 Type IV.
 - a. Form: 2.
 - b. Pattern: "E" lightly textured.
 - c. Fire Class: Class A-Flame spread rating of 25 or less, Smoke developed index of 50 or less, per ASTM E84.
 - 2. Size: 24 by 24 inches.
 - 3. Thickness: 7/8 inches.
 - 4. Light Reflectance: 87 percent, determined in accordance with ASTM E1264.
 - 5. NRC: 80 determined in accordance with ASTM E1264.
 - 6. Articulation Class (AC): 170, determined in accordance with ASTM E1264.
 - 7. Ceiling Attenuation Class (CAC): 35, determined in accordance with ASTM E1264.
 - 8. Panel Edge: Square.
 - 9. Color: As indicated on Drawings...
 - 10. Suspension System: Exposed grid.
 - 11. Products: As indicated on Interiors Drawings and Finish Schedule a. Substitutions: See Section 016000 - Product Requirements.
- C. Acoustical Panels: (ACT-2, ACT-3, ACT-4, ACT-5, ACT-6, ACT-7) Mineral fiber with membrane-faced overlay, with the following characteristics:
 - 1. Classification: ASTM E1264 Type IV.
 - a. Form: 2.
 - b. Pattern: "E" lightly textured.
 - c. Fire Class: Class A-Flame spread rating of 25 or less, Smoke developed index of 50 or less, per ASTM E84.
 - 2. Size: As indicated on Drawings.
 - 3. Thickness: 1" inch.
 - 4. Light Reflectance: 85 percent, determined in accordance with ASTM E1264.
 - 5. NRC: 80 determined in accordance with ASTM E1264.
 - 6. Ceiling Attenuation Class (CAC): 35, determined in accordance with ASTM E1264.
 - 7. Panel Edge: Square.
 - 8. Panel Shape: As indicated on drawings; factory shaped.
 - 9. Color: As indicated on drawings.
 - 10. Suspension System: Exposed grid.
 - 11. Products: As indicted on Interiors Drawings and Finish Schedule.
 - a. Substitutions: See Section 016000 Product Requirements.
- D. Acoustical Panels: (ACT-8) Mineral fiber with membrane-faced overlay, with the following characteristics:
 - 1. Classification: ASTM E1264 Type IV.
 - a. Form: 2, water felted.
 - b. Pattern: "E" lightly textured.
 - 2. Size: 12 by 60 inches.
 - 3. Thickness: 3/4 inch.
 - 4. Light Reflectance: 90 percent, determined in accordance with ASTM E1264.
 - 5. NRC: 65 determined in accordance with ASTM E1264.

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- 6. Ceiling Attenuation Class (CAC): 35, determined in accordance with ASTM E1264.
- 7. Panel Edge: Square.
- 8. Color: White.
- 9. Suspension System: Exposed grid.
- 10. Products: As indicated on Interior Drawing and Finish Schedule
 - a. Substitutions: See Section 016000 Product Requirements.
- E. Acoustical Panel Canopies: (ACS-7, ACS-8) Glass fiber panels with scrim on face and sides, suspended by hanger wire or rods attached to anchor points on panel back.
 - 1. Classification: ASTM E1264 Type XII.
 - a. Form: 2, cloth.
 - b. Pattern: "E" lightly textured.
 - 2. Size and Configuration: As indicated on drawings.
 - 3. Shape: As indicated on drawinfs.
 - 4. Thickness: 7/8 inches.
 - 5. Panel Edge: Square.
 - 6. Color: As indicated on drawings.
 - 7. Products: As indicated on Interior Drawings and Finish Schedule.
 - a. Substitutions: See Section 016000 Product Requirements.
- F. Liner Acoustical Panel or Baff: (ACS-1, ACS-2, ACS-3, ACS-4, ACS-5, ACS-6) Glass fiber panels with scrim on face and sides.
 - 1. Size and Configuration: As indicated on drawings.
 - 2. Shape: As indicated on drawings.
 - 3. Thickness: 2 inches.
 - 4. Light Reflectance: 90 percent, determined in accordance with ASTM E1264.
 - 5. Panel Edge: Square
 - 6. Color: As indicated on drawings.
 - 7. Products: As indicated on Interior Drawings and Finish Schedule
 - a. Substitutions: See Section 016000 Product Requirements.

2.04 SUSPENSION SYSTEM(S)

- A. Metal Suspension Systems General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.
 - 1. Materials:
 - a. Steel Grid: ASTM A653/A653M, G30 coating, unless otherwise indicated.
- B. Exposed Suspension System: Hot-dipped galvanized steel grid and cap.
 - 1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
 - 2. Profile: Tee; 15/16 inch face width.
 - 3. Finish: Baked enamel.
 - 4. Color: White
 - 5. Products: As indicated on Interior Drawings and Finish Schedule
 - a. Substitutions: See Section 016000 Product Requirements.
- C. Exposed Suspension System for "Cloud" Applications: Galvanized steel grid and cap; trim as specified under Accessories.
 - 1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
 - 2. Profile: Tee; 15/16 inch face width.
 - 3. Finish: Baked enamel.
 - 4. Products: As indicated on Interior Drawings and Finish Schedule a. Substitutions: See Section 016000 - Product Requirements.

2.05 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.
- B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.

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- C. Hold-Down Clips: Manufacturer's standard clips to suit application.
- D. Perimeter Moldings: Same metal and finish as grid.
 - 1. Size: As required for installation conditions and specified Seismic Design Category.
 - 2. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
 - 3. Shadow Molding: Shaped to create a perimeter reveal.
 - 4. Channel Molding: U-shaped, for hold-down type installations.
 - 5. Acoustical Sealant For Perimeter Moldings: Non-hardening, non-skinning, for use in conjunction with suspended ceiling system.
- E. Metal Edge Trim for "Cloud" Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
 - 1. Trim Height: As indicated on Drawings..
 - 2. Finish: Baked enamel.
 - Color: White unless otherwise noted on Drawings...
 Products: As indicated on Interior Drawings and Fin
 - Products: As indicated on Interior Drawings and Finish Schedule. a. Substitutions: See Section 016000 - Product Requirements.
- F. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- D. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Use longest practical lengths.
- E. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- H. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- I. Do not eccentrically load system or induce rotation of runners.

3.04 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

- E. Cutting Acoustical Units:
 - 1. Cut to fit irregular grid and perimeter edge trim.
 - 2. Make field cut edges of same profile as factory edges.
 - 3. Double cut and field paint exposed reveal edges.
- F. Where round obstructions occur, provide preformed closures to match perimeter molding.
- G. Install hold-down clips on panels within 20 ft of an exterior door.

3.05 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

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PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient sheet flooring.
- B. Resilient tile flooring.
- C. Static control resilient tile flooring.
- D. Resilient base.
- E. Resilient stair accessories.
- F. Installation accessories.

1.02 RELATED REQUIREMENTS

- A. Section 016116 Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 033000 Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied resilient flooring.
- C. Section 090561 Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.
- D. Section 090561 Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

1.03 REFERENCE STANDARDS

- A. ASTM E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine 2009, with Editorial Revision (2016).
- B. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source 2019a, with Editorial Revision (2020).
- C. ASTM F150 Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring 2006 (Reapproved 2018).
- D. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring 2021.
- E. ASTM F970 Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading 2017.
- F. ASTM F1066 Standard Specification for Vinyl Composition Floor Tile 2004 (Reapproved 2018).
- G. ASTM F1303 Standard Specification for Sheet Vinyl Floor Covering with Backing 2004 (Reapproved 2021).
- H. ASTM F1700 Standard Specification for Solid Vinyl Floor Tile 2020.
- I. ASTM F1861 Standard Specification for Resilient Wall Base 2021.
- J. ASTM F1913 Standard Specification for Vinyl Sheet Floor Covering Without Backing 2019.
- K. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source 2019.
- L. NSF 332 Sustainability Assessment for Resilient Floor Coverings 2015.
- M. RFCI (RWP) Recommended Work Practices for Removal of Resilient Floor Coverings 2011.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

- C. Verification Samples: Submit one samples, full size illustrating color and pattern for each resilient flooring product specified.
- D. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
- E. Manufacturer's Qualification Statement.
- F. Installer's Qualification Statement.
- G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Flooring Material: Quantity equivalent to 5 percent of each type and color.
 - 3. Extra Wall Base: Quantity equivalent to 5 percent of each type and color.
 - 4. Extra Stair Materials: Quantity equivalent to 5 percent of each type and color.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing specified flooring with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.
- C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- D. Protect roll materials from damage by storing on end.
- E. Do not double stack pallets.

1.07 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.01 SHEET FLOORING

- A. Refer to Interior Drawings for Manufacturer, Product and Color.
- B. Vinyl Sheet Flooring: (SV-1) Homogeneous with color and pattern throughout full thickness.
 - a. Manufacturers: As indicted on drawings
 - 1) Substitutions: See Section 016000 Product Requirements.
 - b. Minimum Requirements: Comply with ASTM F1913.
 - c. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
 - d. Thickness: 0.080 inch nominal.
 - e. Sheet Width: 79 inch (2.0m).
 - f. Static Load Resistance: 250 psi minimum, when tested as specified in ASTM F970.
 - g. Seams: Heat welded.
 - h. Integral coved base with cap strip.
 - i. Color: As indicated on drawings.

2.02 TILE FLOORING

- A. Refer to Interior Drawings for Manufacturer, Product and Color.
- B. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness.
 - 1. Manufacturers:
 - a. Armstrong Flooring, Inc; Excelon SDT: www.armstrongflooring.com/#sle.
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- Substitutions: See Section 016000 Product Requirements. b.
- 2. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
- Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in 3. accordance with ASTM E648 or NFPA 253.
- Size: 12 by 12 inch. 4.
- Thickness: 0.125 inch. 5.
- Color: To be selected by Architect from manufacturer's full range. 6.
- Vinyl Tile Type VLT-1: Printed film type, with transparent or translucent wear layer C. 1.
 - Manufacturers: As indicated on drawings
 - Substitutions: See Section 016000 Product Requirements. а
 - Minimum Requirements: Comply with ASTM F1700, Class III, Type B embossed 2. surface.
 - 3. Impact Insulation Class (IIC): 53, minimum, when floor-ceiling assembly tested in accordance with ASTM E492.
 - Critical Radiant Flux (CRF): Class I; Minimum 0.45 watt per square centimeter, when 4. tested in accordance with ASTM E648.
 - Plank Tile Size: As indicated on drawings 5.
 - Wear Laver Thickness: 20 mil. 6.
 - 7. Total Thickness: 0.1 inch.
 - Tile Edge: Eased. 8.
 - Pattern: As indicted on drawings. 9.
 - 10. Color: As indicated on drawings.
 - 11. Factory Finish: Diamond 10 Coating
- Static Dissipative Tile (SDT-1): Homogeneous; color and pattern throughout thickness. D.
 - 1. Manufacturers: As indicated on drrawings
 - Substitutions: See Section 016000 Product Requirements. а
 - 2. Minimum Requirements: Vinyl composition tile complying with ASTM F1066, Class 2.
 - **Electrical Resistance:** 3
 - Dissipative Tile: Resistance between 1.0 megohms and 1000 megohms as а tested in accordance with ASTM F150.
 - 4. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
 - 5. VOC Content Limits: As specified in Section 016116.
 - Tile Size: As indicated on Interior Drawings. 6.
 - Total Thickness: 0.125 inch. 7.
 - Color: As indicated on drawings. 8.

2.03 RESILIENT BASE

- A. Refer to Interior Drawings for Manufacturer, Product, and Color.
- Resilient Base (RB-1, RB-2): ASTM F1861, Type TV, vinyl, thermoplastic; style as В. scheduled.
 - Manufacturers: As indicated on drawings 1
 - 2. Critical Radiant Flux (CRF): Class 1; Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
 - 3. Height: 4 inch.
 - 4. Thickness: 0.080 inch.
 - 5. Finish: Satin.
 - 6. Length: Roll.
 - 7. Color: As indicated on drawings. Where color is not selected, architect to select from manufacturer's full range.
 - 8. Accessories: Premolded external corners and internal corners.

2.04 ACCESSORIES

- A. Subfloor Filler: Cementitious self-leveling floor leveler. Ardex as Basis of Design.
- В. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.

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- C. Adhesive for Vinyl Flooring: As recommended by manufacturer
- D. Moldings, Transition and Edge Strips: As indicated on Interior Drawings.
 1. Manufacturers: As indicated on drawings
- E. Copper Grounding Strips: Type and size as recommended by static control flooring manufacturer.
- F. Floor Polish for Static Control Flooring: Fluid-applied polish, intended to protect electrical properties of flooring, as recommended by static control flooring manufacturer.
- G. Filler for Coved Base: Plastic.
- H. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
 - 1. Test in accordance with Section 090561.
 - 2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
 - 3. Follow moisture and alkalinity remediation procedures in Section 090561.
- D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.
- D. Prohibit traffic until filler is fully cured.
- E. Clean substrate.

3.03 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Adhesive-Applied Installation:
 - 1. Spread only enough adhesive to permit installation of materials before initial set.
 - 2. Place copper grounding strip in conductive adhesive and apply additional adhesive to top side of strip before installing static control flooring. Allow strip to extend beyond flooring in accordance with static control flooring manufacturer's instructions. Refer to Section 260526 for grounding and bonding to building grounding system.
 - 3. Fit joints and butt seams tightly.
 - 4. Set flooring in place, press with heavy roller to attain full adhesion.
- D. Loose-Laid Installation: Set flooring in place in accordance with manufacturer's instructions.
- E. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- F. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
 - 1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.
 - 2. Resilient Strips: Attach to substrate using adhesive.

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- G. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- H. Install flooring in recessed floor access covers, maintaining floor pattern.
- I. At movable partitions, install flooring under partitions without interrupting floor pattern.

3.04 INSTALLATION - SHEET FLOORING

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.
- B. Cut sheet at seams in accordance with manufacturer's instructions.
- C. Seal seams by heat welding where indicated.
- D. No "Sharpie" type indelible or permanent type markers are to be used for marking of floor surfaces for layout or installation of resilient sheet flooring.
- E. Coved Base: Install as detailed on drawings, using coved base filler as backing at floor to wall junction. Extend sheet flooring vertically to height indicated, and cover top edge with metal cap strip.

3.05 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.
- C. Install square tile to ashlar pattern. Allow minimum 1/2 full size tile width at room or area perimeter.
- D. Install loose-laid tile, fit interlocking edges tightly.
- E. Install plank tile with a random offset of at least 6 inches from adjacent rows.

3.06 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

3.07 INSTALLATION - STAIR COVERINGS

- A. Install stair coverings in one piece for full width and depth of tread.
- B. Adhere over entire surface. Fit accurately and securely.

3.08 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.

3.09 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.
- B. Install Ram Board with Vapor Cure Seam Tape for protection after installation

END OF SECTION

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Resinous Matrix Terrazzo Flooring

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SECTION 096623 RESINOUS MATRIX TERRAZZO FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Epoxy matrix terrazzo with ground and polished finish.
- B. Divider strips.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing joints between terrazzo work and adjacent construction and fixtures.

1.03 REFERENCE STANDARDS

- A. NTMA (GRAD) Aggregate Gradation Standards Current Edition.
- B. NTMA (EPOXY) Epoxy Terrazzo Specifications Current Edition.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for divider strips, control joint strips, and sealer; include printed copy of current NTMA recommendations for type of terrazzo specified.
- C. Shop Drawings: Indicate divider strip layout, and details of adjacent components. For precast units, detail profile and anchorage requirements.
- D. Samples: Submit two samples, 2 inch by 2 inch in size illustrating color, chip size and variation, chip gradation, matrix color, and typical divider strip.
- E. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
- F. Manufacturer's Qualification Statement.
- G. Installer's Qualification Statement.
- H. Cleaning and Maintenance Data: Include procedures for stain removal, stripping, and sealing.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with NTMA recommendations as posted at their web site at www.ntma.com.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section.
 - 1. Minimum five years of documented experience.
 - 2. Associate member firm of the National Terrazzo and Mosaic Association, Inc.
- C. Installer Qualifications: Company specializing in performing the type of work specified in this section.
 - 1. Minimum five years of documented experience.
 - 2. Approved by matrix manufacturer.
 - 3. Contractor member of the National Terrazzo and Mosaic Association, Inc.

1.06 MOCK-UP

- A. Construct mock-up of terrazzo illustrating appearance of finished work in each configuration required. Size mock-up to be not less than 3 by 3 feet.
- B. Locate where directed.
- C. Mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store terrazzo materials in a dry, secure area.
- B. Maintain minimum temperature of 60 degrees F.
- C. Keep products away from fire or open flame.

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Resinous Matrix Terrazzo Flooring

1.08 FIELD CONDITIONS

- A. Do not install terrazzo when temperature is below 50 degrees F or above 90 degrees F.
- B. Maintain temperature within specified range 24 hours before, during, and 72 hours after installation of flooring.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design Resinous Matrix Terrazzo Flooring: Spartan Epoxies; Epoxy Resin Flooring: www.spartanepoxies.com.
- B. Approved Equal.
- C. Substitutions: See Section 016000 Product Requirements.

2.02 EPOXY MATRIX TERRAZZO APPLICATIONS

- A. Floors:
 - 1. Thickness: As indicated on Drawings.
 - 2. Color(s): As indicated on drawings.
 - 3. Aggregate Type and Mix: As indicated on Finish Schedule.

2.03 MATERIALS

- A. Epoxy Matrix Terrazzo: Manufacturer's standard recommended for use indicated and in color as indicated in Finish Schedule.
- B. Aggregate: Type as indicated; sized in accordance with NTMA aggregate gradation standards; color(s) as indicated.
- C. Finishing Grout: Epoxy, color to match terrazzo matrix.

2.04 ACCESSORIES

- A. Divider Strips: 1/8 inch thick exposed top strip, of material indicated on drawings, zinc coated steel concealed bottom strip, with anchoring features.
- B. Divider and Control Joint Strip Height: To suit thickness of terrazzo topping, with allowance for grinding.
- C. Sealer: Colorless, non-yellowing, penetrating liquid type to completely seal matrix surface; not detrimental to terrazzo components.
 - 1. Products:
 - a. Terrazzo & Marble Supply Companies; T-Rx: www.tmsupply.com/#sle.
 - b. Substitutions: See Section 016000 Product Requirements.
- D. Primer: Manufacturer's standard recommended for use indicated and in color required for mix indicated..
- E. Flashpatching material as recommended by Terrazzo Manufacturer.
- F. Substrate Crack Suppression Membrane: Product of terrazzo-resin manufactuer, having minmum 120 percent elongation potential according to ASTM D412.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive terrazzo.
- B. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of materials to subfloor surfaces.
- C. Cementitious Subfloor Surfaces: Verify that substrates are ready for terrazzo flooring installation by testing for moisture and alkalinity (pH).
 - 1. Obtain instructions if test results are not within limits recommended by terrazzo flooring manufacturer.

3.02 PREPARATION

A. Clean substrate of foreign matter.

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Prepare concrete subfloor by mechanically abrading surface in accordance with Β. manufacturer's instructions.

- C. Substrate Crack Suppression Membrane: Install to isolate and suppress substrate cracks according to manufacurer's written instructions.
- Apply primer in accordance with manufacturer's instructions. D.

3.03 INSTALLATION

- A. Install divider strips according to pattern approved on shop drawings.
- Place terrazzo mix over substrate to thickness indicated. Β.

3.04 FINISHING

- Finish terrazzo to NTMA requirements. Α.
- Grind terrazzo surfaces with power disc machine; sequence with coarse to fine grit Β. abrasive, using a wet method or using a dry grinder with vacuum to control dust.
- C. Apply grout to fill voids exposed from grinding.
- D. Remove grout coat by grinding, using a fine grit abrasive.

3.05 TOLERANCES

Maximum Variation from Flat Surface: 1/4 inch in 10 feet. A.

3.06 CLEANING

- Scrub and clean terrazzo surfaces with neutral pH cleaner in accordance with Α. manufacturer's instructions. Let dry.
- Immediately after terrazzo has dried, apply sealer in accordance with manufacturer's Β. instructions.
- Polish surfaces in accordance with manufacturer's instructions. C.

3.07 PROTECTION

Α. Protect finished terrazzo from damage due to subsequent construction until Date of Substantial Completion.

END OF SECTION

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SECTION 096813 TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Carpet tile, fully adhered.
- B. Removal of existing carpet tile.

1.02 RELATED REQUIREMENTS

- A. Section 033000 Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied flooring.
- B. Section 090561 Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.
- C. Section 090561 Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.
- D. Section 096816 Sheet Carpeting: Broadloom carpet.

1.03 REFERENCE STANDARDS

- A. ASTM D2859 Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials 2016 (Reapproved 2021).
- B. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source 2019a, with Editorial Revision (2020).
- C. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride 2016a.
- D. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes 2019a.
- E. CRI 104 Standard for Installation of Commercial Carpet 2015.
- F. CRI (GLP) Green Label Plus Testing Program Certified Products Current Edition.
- G. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source 2019.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- C. Samples: Submit one full sized carpet tile illustrating color and pattern design for each carpet color and pattern selected.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Manufacturer's Qualification Statement.
- F. Installer's Qualification Statement.
- G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 1. See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

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C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.06 FIELD CONDITIONS

- A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.
- B. Store materials in area of installation for minimum period of 24 hours prior to installation.
- C. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the reminder of the construction period.
- D. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- E. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Refer to Interior Drawings for Manufacturer, Product and Color.
- B. Substitutions: See Section 016000 Product Requirements.
 - 1. MATERIALS
 - a. Tile Carpeting, Type CPT-1, CPT-2, CPT-3, CPT-4, CPT-5, CPT-6: Multi-Level Pattern Loop
 - 1) Product: As indicated on Interior Drawings and Finish Schedule
 - 2) Tile Size: Refer to Finish Schedule
 - 3) Thickness: .29 inch
 - 4) Color: As indicated on drawings.
 - 5) Pattern: As indicated on drawings.
 - 6) Radiant Panel: Class 1
 - 7) Surface Flammability Ignition: Pass ASTM D2859 (the "pill test").
 - 8) Maximum Electrostatic Charge: 3.5 Kv. at 20 percent relative humidity.
 - 9) Gauge: 1/10 inch.
 - 10) Stitches: 10.0 per inch.
 - 11) Pile Weight: 17 oz/sq yd.
 - 12) Density Factor: 9.38 kilotex.
 - 13) Primary Backing Material: Synthetic.
 - 14) Secondary Backing Material: Ecoworx Tile.
 - 15) Protective Treatment: SSP Shaw Soil Protection
 - 16) Substitutions: See Section 016000 Product Requirements.

2.02 ACCESSORIES

- A. Subfloor Filler: Cementitious shelf-leveling floor leveler. Ardex as Basis of Design.
- B. Adhesives:
 - Compatible with materials being adhered; maximum VOC content of 50 g/L; CRI (GLP) certified; in lieu of labeled product, independent test report showing compliance is acceptable.
- C. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.
- D. Substitutions: See Section 016000 Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive carpet tile.

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- C. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to subfloor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).
 - 1. Test in accordance with Section 090561.
 - 2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.
 - 3. Follow moisture and alkalinity remediation procedures in Section 090561.
- E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Remove existing carpet tile.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove subfloor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with subfloor filler.
- D. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- E. Vacuum clean substrate.

3.03 INSTALLATION

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install carpet tile in accordance with manufacturer's instructions.
- C. Blend carpet from different cartons to ensure minimal variation in color match.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
- F. Locate change of color or pattern between rooms under door centerline.
- G. Fully adhere carpet tile to substrate.
- H. Trim carpet tile neatly at walls and around interruptions.
- I. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Clean and vacuum carpet surfaces.

END OF SECTION

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SECTION 097200 WALL COVERINGS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Wall covering.

1.02 RELATED REQUIREMENTS

A. Section 099123 - Interior Painting: Preparation and priming of substrate surfaces.

1.03 REFEREMCE STANDARDS

- A. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- B. ASTM F793/F793M Standard Classification of Wall Coverings by Use Characteristics 2015.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on wall covering liner and adhesive.
- C. Samples: Submit two samples of wall covering, 8" x 8" min. in size illustrating color and finish.
- D. Test Report: Indicate verification of flame an smoke ratings, when tested by UL.
- E. Manufacturer's Installation Instructions: Indicate special procedurres.
- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of covered surfaces.
- G. Manufacturer's Qualification Statement.
- H. Installers Qualification Statement
- Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 See section 016000 Product Requirements for additional provisions.
 - 2. Extra Wall Covering Materials: 5% of each color and pattern of wall covering; store where directed.
 - 3. Package and label each roll by manufacturer, color and pattern.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- B. Installers Qualifications: Company specializing in performaing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Inspect roll materials at arrival on site, to verify acceptability.
- B. Protect packaged adhesive from temperature cycling and cold tempertures.
- C. Do not store roll goods on end.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outsie the temperature ranges required by the adhesive or wall covering product.
- B. Maintain these conditions 24 hours buring, during and after installation of adhesive and wall covering.
- C. Provide lighting level of 80 candles measured mid-height at substrate surfaces.

PART PRODUCTS

2.01 WALL COVERINGS

A. General Requirements:

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- 1. Surface Burning Characteristics: Flame spread/Smoke developed index of 20/85, maximum, when tested in accordance with ASTM E84.
- 2. Chemical and Stain Resistance: No visible staining or discoloration and no damage to surface texture when tested in accordance with ASTM D1308.
- B. Wall Covering: Woven back, ferrous sheet bonded with white pigments vinyl and capped with sem-gloss, dry erase film.
 - 1. Comply with ASTM F793/F793M, Category V, Type II.
 - 2. Roll Width: As indicated on drawings.
 - 3. Color: As indicated on drawings.
 - 4. Overcoating: Manufacturer's standard coating for stain resistance and abrasion resistance and anti-microbial, mold & mildew resistance.
 - 5. Manufacturers: As indicated on drawings
 - a. Substitutions: See Section 016000 Product Requirements.
- C. Adhesive: Type recommended by wall covering manufacturer to suit application to substrate.

2.02 TRIM & TRAY

- A. Aluminum Tray: Clear satin, anodized aluminum, snap-on marker and dry erase tray with clips. Architect to choose from manufacturer's standard length.
- B. Aluminum Trim: Clear satin, anodized aluminum, snap-on trimp with clips.
- C. End Caps: As recommended by manufacturer.

2.03 ACCESSORIES

- A. Adhesive: As recommended by manufacturer.
- B. Substrate Primer/Sealer: As recommended by manufactuer.
- C. Presenttion Starter Kit: Provide one Walltalkers starter kit containing eigth dry erase markers, one eraser, two dry erase cleaning cloths, one empty bottle of waater, and one 8 ounce (.23kg) bottle liquid surface cleaning solution for each room installed with dry erasse wall coveings.

PART 3: EXECUTION

3.01 EXAMINATION

- A. Examine substrates and installation conditions to ensure surface conditions meet or exceed a Level 4 finish, per GA-214-M-97: Recommended Levels of Gypsum Board Finish, and permanent lighting should be installed and operational.
- B. Test substrate with suitable moisture meter and verify that moisture content does not exceed limites outlined by manufacturer.
- C. Verify substrate surface is clean, dry, smooth, structurally sound, and free from surfce defects and imperfections that would show through the finish surface.
- D. Evalutate all painted surfaces for possibility of pigment bleed-through.
- E. Notify the Architect in writing of any conditions detrimental to the proper and timely completion of the installation.
- F. beginning of instilltion means aceptance of surface conditions.

3.02 INSTALLATION

- A. Acclimate wallcovering in the ara of installation a minimum of 24 hours before installation.
- B. Read and follow the manufactuer's installation instruction sheet contained in each roll of the dry erase wallcovering.
- C. Examine all materials for pattern, color, quantity and quality, as specified for the correct location prior to cutting.
- D. Primer: As recommended by manufacturer.
- E. Adhesive: Apply a uniform coat of manufcturers recommended adhesive.
- F. Install each strip horizontally and in the same sequences as cut from the roll.

- G. Install dry erase wallcovering sheets in exact order as they are cut from bolt. Reverse hang with appropriate. Do not crease or bend the wallcovering when handling.
- H. Install dry erase wallcovering horizontally using a level line.
- I. When covering the entire wall, seam the material out of the main writing and viewing areas of the wall.
- J. Fully bond wall covering to substrate. remove air bubbles, wrinkles, blisters, and other defects.
- K. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without any overlay of spacing between strips.

3.03 CLEANING

- A. remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.
- B. Use cleaning methods recommended in writing by wall-covering manufacturer.
- C. replace strips that cannot be cleaned.
- D. Reinstall any hardware and hardware accessories, electricap plates and covers, light fuxture trims, and similar items that may have been removed to complete wall covering work.

END OF SECTION

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Digitally Printed Vinyl Wall Coverings

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SECTION 097210 DIGITALLY PRINTED VINYL WALL COVERINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Wall covering.

1.02 RELATED REQUIREMENTS

A. Section 099123 - Interior Painting: Preparation and priming of substrate surfaces.

1.03 REFERENCE STANDARDS

- A. ASTM D1308 Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems 2020.
- B. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- C. ASTM F793/F793M Standard Classification of Wall Coverings by Use Characteristics 2015.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on wall coveringliner and adhesive..
- C. Samples: Submit two scaled samples of wall covering, 8" x 8" min. in size illustrating color, finish, and texture.
- D. Test Reports: Indicate verification of flame and smoke ratings, when tested by UL.
- E. Manufacturer's Installation Instructions: Indicate special procedures.
- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of covered surfaces.
- G. Manufacturer's Qualification Statement.
- H. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Inspect roll materials at arrival on site, to verify acceptability.
- B. Protect packaged adhesive from temperature cycling and cold temperatures.
- C. Do not store roll goods on end.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the adhesive or wall covering product manufacturer.
- B. Maintain these conditions 24 hours before, during, and after installation of adhesive and wall covering.
- C. Provide lighting level of 80 ft candles measured mid-height at substrate surfaces.

PART 2 PRODUCTS

2.01 WALL COVERINGS

- A. General Requirements:
 - 1. Surface Burning Characteristics: Flame spread/Smoke developed index of 20/85, maximum, when tested in accordance with ASTM E84.

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- 2. Chemical and Stain Resistance: No visible staining or discoloration and no damage to surface texture when tested in accordance with ASTM D1308.
- B. Wall Covering: 100% Vinyl on 100% Gypsum Cement Liner
 - 1. Comply with ASTM F793/F793M, Category V, Type II.
 - 2. Total Weight: 48 oz. per linear yard
 - 3. Roll Width: As indicated on drrawings
 - 4. Backing: Jute
 - 5. Color: As indicated on drawings.
 - 6. Pattern: As indicated on drawings.
 - 7. Overcoating: Manufacturer's standard coating for stain resistance and abrasion resistance and anti-microbial, molde & mildew resistance.
 - Manufacturers: As indicated on Interior Drawings & Finish Schedule
 - a. Substitutions: See Section 016000 Product Requirements.
- C. Adhesive: Type recommended by wall covering manufacturer to suit application to substrate.
- D. Wall Liner:

8.

- 1. Products:
 - a. Stronghold by Wolf Gordon; Basis-of-Design
 - b. Approved Equal
 - c. Provide liner and adhesive recommended by manufacturer for substrate.
- E. Termination Trim: Extruded plastic.
- F. Substrate Filler: As recommended by adhesive and wall covering manufacturers; compatible with substrate.
- G. Substrate Primer and Sealer: Alkyd enamel type.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work, and comply with requirements of wall covering manufacturer.
- B. Measure moisture content of surfaces using an electronic moisture meter. Do not apply wall coverings if moisture content of substrate exceeds level recommended by wall covering manufacturer.
- C. Verify flatness tolerance of surfaces does not vary more than 1/8 inch in 10 feet nor vary at a rate greater than 1/16 inch/ft.

3.02 PREPARATION

- A. Fill cracks in substrate and smooth irregularities with filler; sand smooth.
- B. Wash impervious surfaces with tetra-sodium phosphate, rinse and neutralize; wipe dry.
- C. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- D. Surfaces: Correct defects and clean surfaces that affect work of this section. Remove existing coatings that exhibit loose surface defects.
- E. Marks: Seal with shellac those that may bleed through surface finishes.
- F. Apply one coat of primer sealer to substrate surfaces. Allow to dry. Lightly sand smooth.
- G. Vacuum clean surfaces free of loose particles.

3.03 INSTALLATION

- A. Apply adhesive and wall liner in accordance with manufacturer's instructions.
- B. Apply adhesive to wall surface immediately prior to application of wall covering.
- C. Use wall covering in roll number sequence.
- D. Razor trim edges on flat work table. Do not razor cut on gypsum board surfaces.

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- E. Apply wall covering smooth, without wrinkles, gaps or overlaps. Eliminate air pockets and ensure full bond to substrate surface.
- F. Butt edges as recommended by manufacturer.
- G. Do not seam within 2 inches of internal corners or within 6 inches of external corners.
- H. Install wall covering before installation of bases and items attached to or spaced slightly from wall surface.
- I. Do not install wall covering more than 1/4 inch below top of resilient base.
- J. Cover spaces above and below windows, above doors, in pattern sequence from roll.
- K. Where wall covering tucks into reveals, or metal wallboard or plaster stops, apply with contact adhesive within 6 inches of wall covering termination. Ensure full contact bond.
- L. Install termination trim.
- M. Remove excess adhesive while wet from seam before proceeding to next wall covering sheet. Wipe clean with dry cloth.

3.04 CLEANING

- A. Clean wall coverings of excess adhesive, dust, dirt, and other contaminants.
- B. Reinstall wall plates and accessories removed prior to work of this section.

3.05 PROTECTION

A. Do not permit construction activities at or near finished wall covering areas.

END OF SECTION

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SECTION 098430 SOUND-ABSORBING WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sound-absorbing wall panels.
- B. Mounting accessories.

1.02 RELATED REQUIREMENTS

A. Section 099123 - Interior Painting.

1.03 REFERENCE STANDARDS

- A. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method 2017.
- B. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- C. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests 2016.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed data sheets for products specified.
- C. Shop Drawings: Fabrication and installation details, panel layout, and fabric orientation
- D. Verification : Fabricated samples of each type of panel specified; 12 by 12 inch, showing construction, edge details, color, pattern and texture per product indicated.
- E. Test Reports: Certified test data from an independent test agency verifying that panels meet specified requirements for acoustical and fire performance.
- F. Manufacturer's Qualification Statement.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Panels: Quantity equal to 5 percent of total installed, but not less than one of each type.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company with not less than two years of experience in manufacturing acoustical products similar to those specified.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect acoustical units from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until units are needed for installation.
- B. Store units flat, in dry, well-ventilated space; do not stand on end.
- C. Protect edges from damage.

1.07 MOCK-UP

- A. See Section 014000 Quality Requirements, for additional mock-up requirements.
- B. Construct mock-up of acoustical units at location as indicated by Architect.
 - 1. Minimum mock-up dimensions; 96 by 96 inches.
 - 2. Approved mock-up may remain as part of the Work.

PART 2 PRODUCTS

2.01 FABRIC-COVERED SOUND-ABSORBING UNITS

- A. Manufacturers: As indicated on Interior Drawings and Finish Schedule.
 - 1. Substitutions: See Section 016000 Product Requirements.
- B. General:
 - 1. Prefinished, factory assembled fabric-covered panels.

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- 2. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
- C. Fabric-Covered Acoustical Panels for Walls: (AWP-2, AWP-3, AWP-4) Fiber glass core, fabric wrapped panel
 - 1. Panel Core: Manufacturer's standard fibreglass board core.
 - a. Facing: FFabric Facing stretched and wrapped around board with chemically hardened edges.
 - 2. Core Density: 6 to 7 lb/cu ft.
 - 3. Noise Reduction Coefficient (NRC): 0.80 when tested in accordance with ASTM C423 for Type A mounting, per ASTM E795.
 - 4. Panel Size: As indicated on Drawings..
 - 5. Panel Thickness: 1 inch.
 - 6. Edges: Square.
 - 7. Fabric: Woven polyester.
 - 8. Color: As indicated.
 - 9. Patterns: Where fabric with directional or repeating patterns or fabric with directional weave is used, mark for installation in same direction.
 - 10. Mounting Method: Direct applied with adhesive.

2.02 POLYESTER SOUND-ABSORBING UNITS

- A. Manufacturers: As indicated on Interior Drawings and Finish Schedule
 - 1. Substitutions: See Section 016000 Product Requirements.
- B. Polyester Fiber Acoustical Panels for Walls: (AWP-1)
 - 1. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
 - 2. Weight: 0.5 lb/sq ft
 - 3. Noise Reduction Coefficient (NRC): 0.45 0.90 when tested in accordance with ASTM C423 for Type A mounting, per ASTM E795.
 - 4. Panel Size: As indicated on Drawings..
 - 5. Panel Thickness: 1/2 inches.
 - 6. Surface Pattern: As indicated on drawings.
 - 7. Mounting: Direct applied with adhesive.

2.03 FABRICATION

- A. Fabric Wrapped, General: Fabricate panels to sizes and configurations as indicated, with fabric facing installed without sagging, wrinkles, blisters, or visible seams.
- B. Tolerances: Fabricate to finished tolerance of plus or minus 1/16 inch for thickness, overall length and width, and squareness from corner to corner.

2.04 ACCESSORIES

- A. Back-Mounting Accessories: Manufacturer's standard accessories for concealed support, designed to allow panel removal:
- B. Panel Adhesive: Acceptable to acoustical panel manufacturer for application as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates for conditions detrimental to installation of acoustical units. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install acoustical units in locations as indicated, following manufacturer's installation instructions.
- B. Align panels accurately, with edges plumb and top edges level. Scribe to fit accurately at adjoining work and penetrations.
- C. Install acoustical units to construction tolerances of plus or minus 1/16 inch for the following:
 - 1. Plumb and level.
 - 2. Flatness.

3. Width of joints.

3.03 CLEANING

A. Clean fabric facing upon completion of installation from dust and other foreign materials, following manufacturer's instructions.

3.04 PROTECTION

- A. Provide protection of installed acoustical panels until Date of Substantial Completion.
- B. Replace panels that cannot be cleaned and repaired to satisfaction of the Architect.

END OF SECTION

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PART 1 GENERAL

13740.20

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
 - Both sides and edges of plywood backboards for electrical and telecom equipment 1. before installing equipment.
 - 2. Prime surfaces to receive wall coverings.
 - 3. Mechanical and Electrical:
 - In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated a. and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - In finished areas, paint shop-primed items. b.
 - Paint interior surfaces of air ducts and convector and baseboard heating cabinets C. that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 - Paint dampers exposed behind louvers, grilles, and convector and baseboard d. cabinets to match face panels.
- D. Do Not Paint or Finish the Following Items:
 - Items factory-finished unless otherwise indicated: materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - Items indicated to remain unfinished. 3
 - Fire rating labels, equipment serial number and capacity labels, bar code labels, and 4. operating parts of equipment.
 - 5. Marble, granite, slate, and other natural stones.
 - Floors, unless specifically indicated. 6.
 - Ceramic and other tiles. 7.
 - 8. Glass.
 - 9 Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

- A. Section 016116 Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 055100 Metal Stairs: Shop-primed items.
- C. Section 099300 Staining and Transparent Finishing: Wood substrates.
- D. Section 099600 High-Performance Coatings.

1.03 DEFINITIONS

A. Comply with ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.
- ASTM D16 Standard Terminology for Paint, Related Coatings, Materials, and Applications B 2016.
- C. ASTM D4258 Standard Practice for Surface Cleaning Concrete for Coating 2005 (Reapproved 2017).
- D. ASTM D4259 Standard Practice for Preparation of Concrete by Abrasion Prior to Coating Application 2018.
- ASTM D4442 Standard Test Methods for Direct Moisture Content Measurement of Wood E. and Wood-Based Materials 2020.

- F. MPI (APL) Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
- G. MPI (APSM) Master Painters Institute Architectural Painting Specification Manual Current Edition.
- H. SSPC V1 (PM1) Good Painting Practice: Painting Manual, Volume 1 2016.
- I. SSPC V2 (PM2) Systems and Specifications: Steel Structures Painting Manual, Volume 2 2015.
- J. SSPC-SP 1 Solvent Cleaning 2015, with Editorial Revision (2016).
- K. SSPC-SP 2 Hand Tool Cleaning 2018.
- L. SSPC-SP 3 Power Tool Cleaning 2018.
- M. SSPC-SP 6 Commercial Blast Cleaning 2007.
- N. SSPC-SP 13 Surface Preparation of Concrete 1997 (Reaffirmed 2003).

1.05 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
 - 2. MPI product number (e.g., MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
 - 2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens not required.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
 - 3. Label each container with color in addition to the manufacturer's label.
 - 4. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint supplier/manufacturer shall furnish a coating maintenance manual such as the Sherwin-Williams "Coating Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch up procedures and color samples of each color and finish used.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, batch date, coverage, surface preparation, drying time, cleanup requirements, color designation/number, VOC content, Environmental handling requirements, and instructions for application, handling, storing, unpacking, protecting, mixing and reducing.

C. Paint Materials: Store materials not in use in tightly covered containers at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions. Maintain containers in clean condition, free of foreign material and residue. Remove rags and waste from storage areas daily.

1.08 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.
- D. Application Temperatures for Paints: 50 degrees F Minimum and 95 degrees F Maximum for interiors unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 50 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Base Manufacturer: Refer to Interior Drawings for Manufacturer, Product, and Color.
- C. Substitutions: See Section 016000 Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
 - 1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
 - 2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 - 4. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Flammability: Comply with applicable code for surface burning characteristics.
- C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- D. Colors: Refer to Interior Drawings for Manufacturer, Product, and Color.
 - 1. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling under which they are mounted.

2.03 PAINT SYSTEMS - INTERIOR

- A. Paint I-OP Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, wood, plaster, and acoustical ceilings.
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, or 141.
 - a. Products:
 - 1) Sherwin-Williams ProMar 200 HP Series, Eg-Shel. (MPI #139)
 - 2) Substitutions: Section 016000 Product Requirements.
 - 3. Top Coat Sheen:

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- a. Eggshell: MPI gloss level 3; use this sheen at all locations, unless noted otherwise.
- 4. Primer: As recommended by top coat manufacturer for specific substrate.
- B. Paint I-OP Interior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete, concrete masonry units, and brick.
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, or 141.
 - a. Products:
 - 1) Sherwin-Williams ProMar 200 HP Series, Semi-Gloss (MPI #141)
 - 3. Top Coat Sheen:
 - a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
 - 4. Primer: As recommended by top coat manufacturer for specific substrate.
- C. Paint I-OP-MD-DT Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
 - 1. Medium duty applications include doors, door frames, railings, handrails, guardrails, and balustrades.
 - 2. Two top coats and one coat primer.
 - 3. Top Coat(s): Interior Epoxy-Modified Latex; MPI #115 or 215.
 - a. Products:
 - 1) Sherwin-Williams Waterbased Catalyzed Epoxy, Semi-Gloss.
 - 2) Substitutions: Section 016000 Product Requirements.
 - 4. Top Coat Sheen:
 - a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
 - 5. Primer: As recommended by top coat manufacturer for specific substrate.
- D. Paint I-TR-C Transparent Finish on Concrete Floors.
 - 1. No Stain.
 - 2. Sealer: Water Based Sealer for Concrete Floors; MPI #99.
 - a. Products:
 - 1) Sherwin-Williams H&C Clarishield Water-Based Wet-Look Concrete Sealer. (MPI #99)
 - 2) Substitutions: Section 016000 Product Requirements.
 - 3. Sealer Sheen:
 - a. Gloss: MPI gloss level 6; use this sheen at all locations.
 - Paint MgI-OP-3L Galvanized Metals, Latex, 3 Coat:
 - 1. One coat galvanize primer.
 - 2. Semi-gloss: Two coats of latex enamel; Sherwin-Williams Pro Industrial Acrylic.

2.04 PRIMERS

E.

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
 - 1. Alkali Resistant Water Based Primer; MPI #3.
 - a. Products:
 - 1) Sherwin-Williams Loxon Concrete and Masonry Primer Sealer, LX02W50. (MPI #3)
 - 2. Interior Institutional Low Odor/VOC Primer Sealer; MPI #149.
 - a. Products:
 - 1) Sherwin-Williams ProMar 200 Zero VOC Latex Primer
 - 3. Interior/Exterior Latex Block Filler; MPI #4.
 - a. Products:
 - 1) Sherwin-Williams PrepRite Block Filler (MPI#4)
 - 4. Interior Rust-Inhibitive Water Based Primer; MPI #107.
 - a. Products:
 - 1) Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been adequately prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report, in writing, any conditions that may affect proper application, appearance, or performance.
- D. Where acceptibility of substate conditions is in question, apply samples and perform insitu testing to verify compatibility, adhesion, and film integrity of new paint application.
- E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- F. Test shop-applied primer for compatibility with subsequent cover materials.
- G. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
 - 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 - 4. Concrete Floors and Traffic Surfaces: 8 percent.
- H. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- I. Proceed with coating application only after unsatisfactory conditions have been corrected; a pplication of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Concrete:
 - 1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
 - 2. Clean concrete according to ASTM D4258. Allow to dry.
 - 3. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.
- G. Masonry:
 - Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
 - 2. Prepare surface as recommended by top coat manufacturer.
- H. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

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- J. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- K. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
 - 2. Prepare surface according to SSPC-SP 2.
- L. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
 - 3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.
- M. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- N. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Use applicators and techniques suited for paint and substrate indicated.
- D. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
- E. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- F. Do not paint over labels of independent testing agencies, door/frame rating lables, or equipment name, identification, performance rating, or nomenclature plates.
- G. Do not paint exposed plywood backing panels for electrical and IT equipment.
- H. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- I. Tint each undercoat a lighter shade to facilitate identication of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- J. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- K. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.
- L. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- M. 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.
- N. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- O. If undercoats or other conditions show through topcoat, apply additional topcoats until cured film has a uniform paint finish, color, and apperance.
- P. Sand wood and metal surfaces lightly between coats to achieve required finish.
- Q. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

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- R. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- S. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in occupied spaces:
 - a. Uninsulated metal piping.
 - b. Pipe hangers and supports.
 - c. Metal conduit.
 - d. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - 2. Paint portions of internal surfaces or metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.
- T. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 Quality Requirements, for general requirements for field inspection.
- B. Contractor shall touch up and restore painted surfaces damaged by testing.
- C. 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.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from 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.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. 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.
- C. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

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SECTION 099600 HIGH-PERFORMANCE COATINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. High performance coatings.
- B. Surface preparation.

1.02 RELATED REQUIREMENTS

- A. Section 016116 Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 099123 Interior Painting: Requirements for mechanical and electrical equipment surfaces.

1.03 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.
- B. ASTM D523 Standard Test Method for Specular Gloss 2014 (Reapproved 2018).
- C. ASTM D4258 Standard Practice for Surface Cleaning Concrete for Coating 2005 (Reapproved 2017).
- D. MPI (APL) Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
- E. MPI (APSM) Master Painters Institute Architectural Painting Specification Manual Current Edition.
- F. SSPC-SP 1 Solvent Cleaning 2015, with Editorial Revision (2016).

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified coating system(s) product is to be used in and locations of application areas; include description of each system.
 - 4. Manufacturer's installation instructions.
- C. Samples: Submit two samples 8 by 8 inch in size on rigid backing illustrating colors indicated.
 - 1. Submit Samples for each type of coating system and in each color and gloss of topcoa t indicated.
 - 2. Label each coat of each Sample.
 - 3. Label each Sample for location and application area.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 CLOSEOUT SUBMITTALS

- A. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- B. Maintenance Data: Include cleaning procedures and repair and patching techniques.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 Product Requirements, for additional provisions.
 - 2. Extra Coating Materials: 1 gallon of each type and color.
 - 3. Label each container with manufacturer's name, product number, color number, and room names and numbers where used.
 - 4. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint supplier/manufacturer shall furnish a coating maintenance manual such as the Sherwin-Williams "Coating Project Color and Product Information" report or equal.

Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch up procedures and color samples of each color and finish used.

1.06 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document that applies to application on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- C. Applicator Qualifications: Company specializing in performing the work of this section with minimum 3 years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in manufacturer's orignal sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of coating, brand name, lot number, brand code, batch date, coverage, surface preparation, drying time, cleanup requirements, color designation/number, VOC content, Environmental handling requirements and instructions for application, handling, storing, unpacking, protecting, mixing and reducing.
- C. Coating Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the coating product manufacturer.
- C. Do not install materials when temperature is below 55 degrees F or above 90 degrees F.
- D. Maintain this temperature range, 24 hours before, during, and 72 hours after installation of coating.
- E. Provide lighting level of 50 ft candles measured mid-height at substrate surface.
- F. Restrict traffic from area where coating is being applied or is curing.

1.09 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Only materials (primers, coatings, etc.) listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project.
- B. Provide high performance coating products from the same manufacturer to the greatest extent possible.
- C. High-Performance Coatings: Refer to Interior Drawings for Manufacturer, Product, and Color.
 - 1. Substitutions: Section 016000 Product Requirements.

2.02 HIGH-PERFORMANCE COATINGS

- A. MPI Standards: Provide products that comply with MPI standards indicated and are listed in "MPI Approved Products List."
- B. Material Compatibility: Provide the following:
 - 1. Materials for use within each coating system that are compatible with one another and substrates indicated, under condition of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. Recommended products for each coat in a coating system in writing by manfucturers of topcoat for use in coating system and on substrate indicated.

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C. Gloss Levels: Products shall comply with MPI (APSM) Gloss Level Standards according to ASTM D523

2.03 TOP COAT MATERIALS

- A. Coatings General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated; number of coats specified does not include primer or filler coat.
 - 1. Volatile Organic Compound (VOC) Content:
 - a. Provide coatings that comply with the most stringent requirements specified in the following:
 - 1) 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - b. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- B. Latex Coating Type Concrete Substrates, Vertical Surfaces & Gypsum Board Substrates:
 - 1. Number of Coats: Two.
 - 2. Top Coat(s): Latex, Interior, High Performance Architectural; MPI #138, #139, #140, #141
 - a. Sheen: Eggshell.
 - b. Products: As indicated on Interior Drawings and Finish Schedule
 - 1) Substitutions: Section 016000 Product Requirements.
 - Latex Coating Type CMU Substrates, Steel Substrates:
 - a. Number of Coats: Two.
 - b. Top Coat(s): Latex, Interior, High Performance Architectural; MPI #138, #139, #140, #141.
 - 1) Sheen: Semi-Gloss.
 - 2) Products: As indicated on Interior Drawings and finish schedule(a) Substitutions: Section 016000 Product Requirements.
 - 4. Primer: As recommended by coating manufacturer for specific substrate.

2.04 PRIMERS

3.

- A. Primers: Provide the following unless other primer is required or recommended by coating manufacturer.
 - 1. Primer Sealer, Latex, Interior; MPI #50.
 - a. Products:
 - 1) Sherwin-Williams; ProMar 200 Zero VOC Interior Latex Primer: www.protective.sherwin-williams.com/#sle. (MPI #50)
 - 2) Substitutions: Section 016000 Product Requirements.
 - 2. Block Filler, Latex; MPI #4.
 - a. Products:
 - 1) Sherwin-Williams; PrepRite Interior/Exterior Block Filler:
 - www.protective.sherwin-williams.com/#sle. (MPI #4)
 - 2) Substitutions: Section 016000 Product Requirements.
 - 3. Primer Sealer for Cementitious Substrates, Water Based Epoxy; Concrete.
 - a. Products:
 - 1) Sherwin-Wiliams Loxon Concrete & Masonry Primer Sealer
 - 4. Rust-Inhibitive, Water Based; MPI #107.
 - a. Products:
 - 1) Sherwin-Williams; Pro Industrial Pro-Cryl Universal Primer:
 - www.protective.sherwin-williams.com/#sle. (MPI #107)
 - 2) Substitutions: Section 016000 Product Requirements.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of coated surfaces.

2.06 SOURCE QUALITY CONTROL

- A. Owner will 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.
- B. Testing agency will perform tests for compliance with product requirements.
- C. 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 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

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Do not begin application of coatings until substrates have been properly prepared.
- C. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.
- D. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Cementitious Substrates: Do not begin application until substrate has cured 28 days minimum and measured moisture content is not greater than 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Concrete Floors and Traffic Surfaces: 8 percent.
 - 4. Gypsum Board: 12 percent.
- F. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- G. Proceed with coating application only after unacceptable conditions have been corrected.
 1. Commencing coating application constitutes Contractor's acceptance of substrates
 - and conditions.

3.02 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in MPI (APSM) applicable to substrates indicated.
- B. Clean surfaces of loose foreign matter.
- C. Remove substances that would bleed through finished coatings. If unremovable, seal surface with shellac.
- D. 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.
- E. 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 re-prime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.
- F. Existing Painted and Sealed Surfaces:
 - 1. Remove loose, flaking, and peeling paint. Feather edge and sand smooth edges of chipped paint.
 - 2. Clean with mixture of trisodium phosphate and water to remove surface grease and foreign matter.
- G. Concrete:
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- 1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- 2. Prepare surface as recommended by coating manufacturer and according to SSPC-SP 13.
- H. Masonry:
 - Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
 - 2. Prepare surface as recommended by coating manufacturer.
- I. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
 - 2. Prepare surface according to SSPC-SP 2.
- J. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
 - 3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning", and protect from corrosion until coated.
- K. Protect adjacent surfaces and materials not receiving coating from spatter and overspray; mask if necessary to provide adequate protection. Repair damage.

3.03 PRIMING

A. Apply primer to all surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

3.04 COATING APPLICATION

- A. Apply coatings in accordance with manufacturer's written instructions, to thicknesses specified and recommendations in "MPI Architectural Painting and Specification Manual".
- B. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.
- C. 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.
- D. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- E. 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.
- F. Do not paint over labels of independent testing agencies, door/frame rating labels or equipment name, identification, performance rating, or nomenclature plates.
- G. Do Not Paint exposed plywood backing panels for electrical and IT equipment.
- H. Use applicators and techniques suited for coating and substrate indicated.
- I. 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.
- J. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- K. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

3.05 FIELD QUALITY CONTROL

- A. See Section 014000 Quality Requirements, for general requirements for field inspection.
- B. 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. 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, and specified thickness, Contractor shall pay for retesting and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations, and specified thickness.

3.06 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Clean surfaces immediately of overspray, splatter, and excess material.
- C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.07 PROTECTION

- A. Protect finished work from damage.
- B. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

SECTION 101146 – MAGNETIC VISUAL DISPLAY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes magnetic wall coverings.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of wall covering. Include data on physical characteristics, durability, and flame-resistance characteristics.
- B. Shop Drawings: Show location and extent. Indicate seams and termination points.
- C. Samples: For each type of wall covering.
- D. Samples for Initial Selection: For each type of wall covering.
- E. Samples for Verification: Full width by 36-inch-long section of wall covering.
- F. Product Schedule: For wall coverings. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For surface-burning characteristics of each type of wall covering, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For wall coverings to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for installation.
 - 1. Build mockup of typical wall covering as shown on Drawings.
 - 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.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install wall coverings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; 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.

2.2 DIGITAL MAGNETIC WALL COVERINGS

- A. Manufacturer
 - 1. Write Wall: Basis-of-Design
 - 2. Approved Equal
- B. Magnetic Wall Covering Provided with Graphic Digital Image: Intended for use with magnetic aids and consisting of moderate-gloss plastic film bonded to 100% cellulose non-woven backing.
- C. Product: Digital-MAG60-CD coated.
 - 1. Color: As indicated on Drawings in Finish Schedule.
- D. Adhesives for Field Application: Strippable, mildew-resistant, nonstaining adhesive for use with wall coverings; and for substrate application; as recommended in writing by wall covering manufacturer.
- E. Primer/Sealer: Mildew-resistant primer/sealer complying with requirements in Section 099123 "Interior Painting" and recommended in writing by wall covering manufacturer for intended substrate.
- F. Accessories: Provide a variety of magnetic black music notes. Quantity of 40 notes.

2.3 MAGNETIC WALL COVERINGS

- A. Manufacturer
 - 1. Write Wall: Basis-of-Design
 - 2. Approved Equal
- B. Magnetic Wall Covering: Intended for use with magnetic aids and consisting of moderate-gloss plastic film bonded to 100% cellulose non-woven backing.
- C. Product: MAGDO-CD coated.
 - 1. Color: As indicated on Drawings in Finish Schedule.
- D. Adhesives for Field Application: Strippable, mildew-resistant, nonstaining adhesive for use with wall coverings; and for substrate application; as recommended in writing by wall covering manufacturer.
- E. Primer/Sealer: Mildew-resistant primer/sealer complying with requirements in Section 099123 "Interior Painting" and recommended in writing by wall covering manufacturer for intended substrate.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, moisture content, and other conditions affecting performance of the Work.
- B. Examine walls and partitions for proper preparation for wall covering.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances, including dirt, mold, and mildew, that could impair the bond of wall coverings or affect the smooth, finished surfaces of wall coverings.
- C. Prepare surfaces to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, defects, projections, and depressions.
- D. Prepare substrates indicated to receive wall covering as required by manufacturer's written instructions to achieve a smooth, dry, clean, structurally sound surface that is uniform in color.
 - 1. Moisture Content: Maximum of 4 percent when tested with an electronic moisture meter.
 - 2. Metals: If not factory primed, clean and apply metal as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
 - 3. Plaster: Allow new plaster to cure. Neutralize areas of high alkalinity. Prime with primer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
 - 4. Gypsum Board: Prime with primer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
 - 5. Painted Surfaces: Treat areas susceptible to pigment bleeding.

3.3 INSTALLATION

- A. Wall Covering: Comply with wall-covering manufacturers' written installation instructions.
 - 1. Install seams horizontal and level, with lowest seam 24 inches above bottom of wall covering installation as indicated on drawings. Railroad fabric (reverse roll direction) to ensure color matching.
 - 2. Double cut seams, with no gaps or overlaps. Remove air bubbles, wrinkles, blisters, and other defects.
 - 3. After installation, clean wall covering in accordance with manufacturer's written instructions. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.

3.4 CLEANING AND PROTECTION

- A. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.
- B. Clean wall covering in accordance with manufacturer's written instructions. Attach one removable cleaning instructions label to wall covering in each room.
- C. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

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SIGNAGE

101419 - 1

SECTION 101419 - DIMENSIONAL LETTER SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Exterior Dimensional Letters.
 - 2. Interior Dimensional Letters.
 - 3. Signage accessories.

1.2 SUBMITTALS

- Α. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of sign.
- Β. Shop Drawings: Include plans, elevations, and large-scale sections of typical members and other components. Show mounting methods, grounds, mounting heights, lavout, spacing, reinforcement, accessories, and installation details.
 - Include large-scale details of font, wording, lettering, 1.
- C. Samples for Initial Selection: For each type of sign material indicated that involves color selection.
- D. Samples for Verification: For each type of sign, include the following Samples to verify color selected:
 - 1. Dimensional Letters: Full-size Samples of color specified.
 - 2. Approved samples will not be returned for installation into Project.
- E. Qualification Data: For Installer.
- F. Maintenance Data: For signage cleaning and maintenance requirements to include in maintenance manuals.

1.3 QUALITY ASSURANCE

- Installer Qualifications: An employer of workers trained and approved by signage manufacturer. Α.
- Β. Source Limitations: Obtain all sign types through one source from a single manufacturer.
- Provide signage with the following fire-test-response characteristics, as determined by testing C. identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - Surface-Burning Characteristics: As follows, per ASTM E 84: 1.
 - Flame-Spread Index: 25 or less. a.
 - b. Smoke-Developed Index: 450 or less.
 - Fire Hazard Classification: Class A C.
 - "Self -extinguishing": NEMA rated d.

1.4 **PROJECT CONDITIONS**

Field Measurements: Where sizes of signs are determined by dimensions of surfaces on which Α. they are installed, verify dimensions by field measurement before fabrication and indicate measurements on Shop Drawings.

1.5 COORDINATION

Α. For signs supported by or anchored to permanent construction, advise installers of anchorage devices about specific requirements for placement of anchorage devices and similar items to be used for attaching signs.

1. For signs supported by or anchored to permanent construction, furnish templates for installation of anchorage devices.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 1. Basis of Design products: The design for each sign is based the product named. Subject to compliance with the requirements, provided either the named product or a comparable product by other manufacturers.

2.2 DIMENSIONAL LETTERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide ASI Modulex or a comparable product by one of the following:
 - 1. ASI-Modulex, Inc.
 - 2. 2/90 Sign Systems
 - 3. Gemini, Inc
- B. Cast Letters: Produce characters with smooth flat faces, sharp corners, and precisely formed lines and profiles, free of pits, scale, sand holes, and other defects. Cast lugs into back of characters and tap to receive threaded mounting studs. Alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated. Comply with the following requirements.
 - 1. Character Material: Metal, Architect to select material and finish from fabricators standard selections.
 - 2. Mounting: Concealed studs, noncorroding for substrates encountered.
 - 3. Locations: See Drawings for signage locations.
 - 4. Size: As indicated on Drawings.
 - 5. Copy: As indicated on drawings and approved by owner at time of shop drawing submittal.
 - 6. Character Style: As indicated on drawings; to be selected from standard fonts.

2.3 ACCESSORIES

- A. Mounting Methods:
 - 1. Fasteners fabricated from materials that are not corrosive to sign material and mounting surface.
- B. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.4 FINISHES, GENERAL

- A. Protect finishes on exposed surfaces from damage by applying 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 range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Examine supporting members to ensure that surfaces are at elevations indicated or required to comply with authorities having jurisdiction and are free from dirt and other deleterious matter.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Locate signs and accessories where indicated, using mounting methods of types described and in compliance with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free from distortion and other defects in appearance.
 - 2. Interior wall signs: install on walls adjacent to latch side of door where applicable, where not indicated or possible, such as double doors, install sign on nearest adjacent wall. Locate to allow approach within 3 inches of the sign without encountering protruding objects or standing within the swing of the door or as shown on the drawings

3.3 CLEANING AND PROTECTION

A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

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SECTION 10 2113 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-polymer toilet compartments configured as toilet enclosures and urinal screens.
- B. Related Sections:
 - 1. Division 10 Section "Toilet Accessories" for grab bars, mirrors, and similar accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show locations of cutouts for compartment-mounted toilet accessories.
 - 2. Show locations of reinforcements for compartment-mounted grab bars.
 - 3. Show locations of centerlines of toilet fixtures.
- C. Samples for Initial Selection: For each type of unit indicated. Include Samples of hardware and accessories involving material and color selection.
- D. Product Certificates: For each type of toilet compartment, from manufacturer.
- E. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84, or another standard acceptable to authorities having jurisdiction, by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 50 or less.
 - 2. Smoke-Developed Index: 450 or less.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" and ICC/ANSI A117.1 for toilet compartments designated as accessible.

1.5 **PROJECT CONDITIONS**

A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Castings: ASTM B 26.
- B. Aluminum Extrusions: ASTM B 221.
- C. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.
- D. Stainless-Steel Castings: ASTM A 743.

2.2 SOLID-POLYMER UNITS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Accurate Partitions Corporation.
 - 2. General Partitions Mfg. Corp.
 - 3. Global Steel Products Corp.
 - 4. Santana Products, Inc.
 - 5. Sanymetal; a Crane Plumbing company.
 - 6. Weis-Robart Partitions, Inc.
- B. Toilet-Enclosure Style: Overhead braced.
- C. Urinal-Screen Style: Wall hung.
- D. Door, Panel, Screen, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.
 - 1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
 - 2. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum or stainlesssteel strip fastened to exposed bottom edges of solid-polymer components to prevent burning.
 - 3. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range.
- E. Pilaster Shoes and Sleeves (Caps): Manufacturer's standard design; stainless steel.
- F. Brackets (Fittings):
 - 1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

2.3 ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
 - 1. Material: Stainless steel.
 - 2. Hinges: Manufacturer's standard paired, self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
 - a. Provide integral hinge for solid-polymer doors.
 - 3. Latch and Keeper: Manufacturer's standard recessed latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
 - 4. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.
 - 5. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors and entrance-screen doors.
 - 6. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel.

2.4 FABRICATION

A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.

B. Door Size and Swings: Unless otherwise indicated, provide 24-inch- wide, in-swinging doors for standard toilet compartments and 36-inch- wide, out-swinging doors with a minimum 32-inch-wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch.
 - b. Panels and Walls: 1 inch.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and doors in entrance screens to return doors to fully closed position.

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CUBICLES

SECTION 102123 – CUBICLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Curtain tracks and carriers.
- B. Related Requirements:
 - 1. Section 061000 "Rough Carpentry" & Section 061053 "Miscellaneous Rough Carpentry" for supplementary wood framing and blocking for mounting items requiring anchorage.
 - 2. Section 092216 "Non-Structural Metal Framing" for supplementary metal framing and blocking for mounting items requiring anchorage.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include durability, laundry temperature limits, fade resistance, applied curtain treatment, and fire-test-response characteristics for each type of curtain fabric indicated.
 - 2. Include data for each type of track.
- B. Shop Drawings:

3.

- 1. Show layout and types of cubicles, sizes of curtains, number of carriers, anchorage details, and conditions requiring accessories. Indicate dimensions taken from field measurements.
- 2. Include details on blocking above ceiling and in walls.
- C. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Suspended ceiling components.
 - 2. Structural members to which suspension systems will be attached.
 - Items penetrating finished ceiling, including the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Sprinklers.
 - e. Access panels.
- D. Samples: For each exposed product and for each color and texture specified, 10 inches in size.
- E. Samples for Initial Selection: For each type of curtain material indicated.
- F. Samples for Verification: For each type of product required, prepared on Samples of size indicated below:
 - 1. Curtain Track: Not less than 10 inches long.
 - 2. Curtain Carrier: Full-size unit.
 - 3. Curtain Fabric: 12-inch- square swatch or larger as required to show complete pattern repeat, from dye lot used for the Work, with specified treatments applied. Mark top and face of material.
 - 4. Mesh Top: Not less than 4 inches square.

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G. Curtain and Track Schedule: Use same designations indicated on Drawings.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For curtains, track, and hardware to include in operation and maintenance manuals.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Curtain Carriers and Track End Caps: Full-size units equal to 3 percent of amount installed for each size indicated, but no fewer than 10 units.

1.5 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of typical cubicle, complete with track, and IV hanger, as shown on Drawings.
 - 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.

PART 2 - PRODUCTS

2.1.1 CURTAIN SUPPORT SYSTEMS

- A. Basis-of-Design Product: Subject to compliance with requirements provide a curtain support system by the following manufacturer or a comparable product:
 - 1. InPro Corporation.
 - 2. General Cubicle Company, Inc.
- B. PVC Curtain Track: Not less than 1-1/4 inches wide by 15/16 inch high.
 - 1. Curved Track: Factory-fabricated, 12-inch- radius bends.
- C. Curtain Track Accessories: Fabricate splices, end caps, connectors, end stops, coupling and joining sleeves, wall flanges, brackets, ceiling clips, and other accessories from same material and with same finish as track.
 1. End Stop: Removable.
- D. Curtain Carriers: Two nylon rollers and nylon axle with chrome-plated steel hook.
- E. Exposed Fasteners: Stainless steel.
- F. Concealed Fasteners: Stainless steel.

CUBICLES

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, 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 INSTALLATION

- A. General: Install tracks level and plumb, according to manufacturer's written instructions.
- B. Up to 20 feet in length, provide track fabricated from single, continuous length.
 1. Curtain Track Mounting: Surface.
- C. Surface-Track Mounting: Fasten tracks to ceilings at intervals recommended by manufacturer. Fasten tracks to structure at each splice and tangent point of each corner. Center fasteners in track to ensure unencumbered carrier operation. Attach track to ceiling as follows:
 - 1. Mechanically fasten directly to finished ceiling with toggle bolts.
 - 2. Mechanically fasten to furring through suspended ceiling with screw and tube spacer.
 - 3. Mechanically fasten to suspended ceiling grid with screws.
 - 4. Attach track to suspended ceiling grid with manufacturer's proprietary clip.
- D. Track Accessories: Install splices, end caps, connectors, end stops, coupling and joining sleeves, and other accessories as required for a secure and operational installation.
 - 1. Provide one hinged loading unit for each bed.
- E. Curtain Carriers: Provide curtain carriers adequate for 6-inch spacing along full length of curtain plus an additional carrier.

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SECTION 102600 - WALL AND DOOR PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

Α.

Section Includes:

1. Impact-resistant wall coverings and accessories

1.2 ACTION SUBMITTALS

- A. Product Data: Include construction details, material descriptions, impact strength, fire-testresponse characteristics, dimensions of individual components and profiles, and finishes for each impact-resistant wall protection unit.
- B. Shop Drawings: For each impact-resistant wall protection unit showing locations and extent. Include sections, details, and attachments to other work.
 - 1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each impact-resistant wall protection unit to include in maintenance manuals.
 - 1. Include recommended methods and frequency of maintenance for maintaining optimum condition of plastic covers under anticipated traffic and use conditions. Include precautions against using cleaning materials and methods that may be detrimental to plastic finishes and performance.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations: Obtain impact-resistant wall protection units from single source from single manufacturer.
- C. Product Options: Drawings indicate size, profiles, and dimensional requirements of impactresistant wall protection units and are based on the specific system indicated. Refer to Section 014000 "Quality Requirements."
- D. Surface-Burning Characteristics: Provide impact-resistant, plastic wall protection units with surface-burning characteristics as determined by testing identical products per ASTM E 84, NFPA 255, or UL 723 by UL or another qualified testing agency.
- E. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store impact-resistant wall protection units in original undamaged packages and containers inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.6 **PROJECT CONDITIONS**

A. Environmental Limitations: Do not deliver or install impact-resistant wall protection units until building is enclosed and weatherproof, wet work is complete and dry, and HVAC system is

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operating and maintaining temperature at 70 deg F for not less than 72 hours before beginning installation and for the remainder of the construction period.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of impact-resistant wall protection units that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. PVC Plastic: ASTM D 1784, Class 1, textured, chemical- and stain-resistant, high-impactresistant PVC or acrylic-modified vinyl plastic with integral color throughout; extruded and sheet material, thickness as indicated.
 - 1. Impact Resistance: Minimum 13 ft-Ibf/in. of notch when tested according to ASTM D 256, Test Method A.
 - 2. Chemical and Stain Resistance: Tested according to ASTM D 543.
 - 3. Self-extinguishing when tested according to ASTM D 635.
 - 4. Flame-Spread Index: 25 or less.
 - 5. Smoke-Developed Index: 450 or less.
- B. Aluminum Extrusions: Alloy and temper recommended by manufacturer for type of use and finish indicated, but with not less than strength and durability properties specified in ASTM B 221 for Alloy 6063-T5.
- C. Stainless-Steel Sheet: ASTM A 240/A 240M.
- D. Fasteners: Aluminum, nonmagnetic stainless-steel, or other noncorrosive metal screws, bolts, and other fasteners compatible with items being fastened. Use security-type fasteners where exposed to view.

2.2 CORNER GUARDS

2.3 IMPACT-RESISTANT WALL COVERINGS

- A. Impact-Resistant Sheet Wall Covering: Fabricated from plastic sheet wall-covering material.
- B. <u>Basis-of-Design Product</u>: Subject to compliance with requirements, provide the products listed on the Interiors drawings in the "Finish Schedule" or Approved Equal.
 - 1. Height: As indicated in drawings
 - 2. Thickness: As indicated in drawings.
 - 3. Mounting: Adhesive.

2.4 FABRICATION:

- A. Fabricate impact-resistant wall protection units to comply with requirements indicated for design, dimensions, and member sizes, including thicknesses of components.
- B. Fabricate components with tight seams and joints with exposed edges rolled. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.

2.5 METAL FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Remove tool and die marks and stretch lines, or blend into finish.

- 2. Grind and polish surfaces to produce uniform finish, free of cross scratches.
- 3. Run grain of directional finishes with long dimension of each piece.
- 4. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
- B. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls to which impact-resistant wall protection will be attached for blocking, grounds, and other solid backing that have been installed in the locations required for secure attachment of support fasteners.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Complete finishing operations, including painting, before installing impact-resistant wall protection system components.
- B. Before installation, clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

- A. General: Install impact-resistant wall protection units level, plumb, and true to line without distortions.
 - 1. Provide splices, mounting hardware, anchors, and other accessories required for a complete installation.
 - a. Provide anchoring devices to withstand imposed loads.
 - b. Where splices occur in horizontal runs of more than 20 feet, splice aluminum retainers and plastic covers at different locations along the run, but no closer than 12 inches.
- B. Impact-Resistant Wall Covering: Install top and edge moldings, and corners as required for a complete installation.

3.4 CLEANING

- A. Immediately after completion of installation, clean covers and accessories using a standard, household cleaning agent.
- B. Remove excess adhesive using methods and materials recommended in writing by manufacturer

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TOILET AND BATH ACCESSORIES

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SECTION 102800 – TOILET AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
- B. Related Sections:
 - 1. Division 09 Section "Tiling" for ceramic toilet and bath accessories.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
- C. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.
- D. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.

1.4 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.5 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.

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C. Steel Sheet: ASTM A 1008, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.

ACCESSORIES

- D. Galvanized-Steel Sheet: ASTM A 653, with G60 hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-andtheft resistant where exposed, and of galvanized steel where concealed.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.
- I. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. A & J Washroom Accessories, Inc.
 - 2. American Specialties, Inc.
 - 3. Bobrick Washroom Equipment, Inc.
 - 4. Bradley Corporation.
 - 5. GAMCO Specialty Accessories; a division of Bobrick Washroom Equipment, Inc.
- B. Toilet Tissue Dispenser:
 - 1. Product shall be furnished by Owner to Contractor for installation per manufacturer's recommendations.
- C. Paper Towel Dispenser:
 - 1. Product shall be furnished by Owner to Contractor for installation per manufacturer's recommendations.
- D. Liquid-Soap Dispenser:
 - 1. Product shall be furnished by Owner to Contractor for installation per manufacturer's recommendations.
- E. Grab Bar:
 - 1. Basis-of-Design Product: Bobrick B-5806 Series
 - 2. Mounting: Flanges with concealed fasteners.
 - 3. Material: Stainless steel, 0.05 inch thick.
 - a. Finish: Smooth, No. 4, satin finish.
 - 4. Outside Diameter: 1-1/4 inches.
 - 5. Configuration and Length: As indicated on Drawings.
- F. Sanitary-Napkin Disposal Unit:
 - 1. Basis-of-Design Product: Bobrick No. B-354.
 - 2. Mounting: Partition mounted, dual access.
 - 3. Door or Cover: Self-closing disposal-opening cover and hinged face panel with tumbler lockset.
 - 4. Receptacle: Removable.
 - 5. Material and Finish: Stainless steel, No. 4 finish (satin).
- G. Mirror Unit in Toilet Rooms:
 - 1. Basis-of-Design Product: Bobrick No. B-290.
 - 2. Frame: Stainless-steel angle, 0.05 inch thick.
 - a. Corners: Welded and ground smooth.
 - 3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
 - a. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.

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TOILET AND BATH ACCESSORIES

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- b. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
- 4. Size: 24 by 36 inches.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

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TOILET AND BATH ACCESSORIES

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SECTION 104413 - FIRE PROTECTION CABINETS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

- 1. Fire-protection cabinets for the following:
 - a. Portable fire extinguishers.
- 2. Mounting brackets for portable fire extinguishers

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing recessed-, semirecessed-, or surface-mounting method and relationships of box and trim to surrounding construction.
- B. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and attachments to other work.
- C. Product Schedule: For fire-protection cabinets. Indicate whether recessed, semirecessed, or surface mounted. Coordinate final fire-protection cabinet schedule with fire-extinguisher schedule to ensure proper fit and function.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

1.4 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

2.2 FIRE-PROTECTION CABINET

- A. Cabinet Type: Suitable for fire extinguisher.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - b. Larsens Manufacturing Company.
 - c. Potter Roemer LLC.
- B. Cabinet Construction: Nonrated.
 - 1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.043-inch- thick cold-rolled steel sheet lined with minimum 5/8-inch- thick fire-barrier material. Provide factory-drilled mounting holes.
- C. Cabinet Material: Cold-rolled steel sheet.
- D. Semirecessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 1. Rolled-Edge Trim: 2-1/2-inch backbend depth.
- E. Cabinet Trim Material: Steel sheet.

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F. Door Material: Steel sheet.

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- G. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
 - 1. Provide recessed door pull and friction latch.
 - 2. Provide manufacturer's standard hinge permitting door to open 180 degrees.
- Η. Accessories:
 - Identification: Lettering complying with authorities having jurisdiction for letter style, size, 1. spacing, and location. Locate as directed by Architect.
 - Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
 - Location: Applied to cabinet door. 1)
 - 2) Application Process: Silk-screened.
 - Lettering Color: White. 3)
 - 4) Orientation: Vertical.
- ١. Materials:
 - 1. Cold-Rolled Steel: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
 - Finish: Baked enamel or powder coat. а.
 - Color: As selected by Architect from full range of industry colors and color b. densities.

2.3 FABRICATION

- Α. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
 - Weld joints and grind smooth. 1.
 - 2. Provide factory-drilled mounting holes.
 - 3. Prepare doors and frames to receive locks.
 - Install door locks at factory. 4.
- Β. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
 - Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 1. inch thick.
 - 2. Fabricate door frames of one-piece construction with edges flanged.
 - Miter and weld perimeter door frames. 3.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

GENERAL FINISH REQUIREMENTS 2.4

- Α. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.
- Β. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.5 MOUNTING BRACKETS

Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or Α. structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

- 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. <u>Guardian Fire Equipment, Inc</u>.
 - b. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - c. Larsens Manufacturing Company.
 - d. <u>Nystrom Building Products</u>.
 - e. <u>Potter Roemer LLC</u>.
- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
 - a. Orientation: Vertical.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare recesses for semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install fire-protection cabinets in locations and at mounting heights indicated
- B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Unless otherwise indicated, provide recessed fire-protection cabinets. If wall thickness is inadequate for recessed cabinets, provide semirecessed fire-protection cabinets.
 - 2. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factoryfinished appearance. Use only materials and procedures recommended or furnished by fireprotection cabinet and mounting bracket manufacturers.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

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SECTION 107300 – TRANSLUCENT PANEL CANOPY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the structural canopy system as shown and specified. Work includes providing and installing:
 - 1. Structural aluminum box beam superstructure
 - 2. Factory prefabricated structural insulated translucent sandwich panels
 - 3. Aluminum installation system
- B. Related Sections:
 - 1. Section 051200 "Structural Steel Framing" for canopy supports not provided in this section.

1.2 SUBMITTALS

- A. Submit manufacturer's product data. Include construction details, material descriptions, profiles and finishes of components.
- B. Submit shop drawings. Include plans, elevations, and details.
- C. Submit manufacturer's color charts showing the full range of colors available for factory finished aluminum.
 - 1. When requested, submit samples for each exposed finish required, in same thickness and material indicated for the work and in size indicated below. If finishes involve normal color variations, include sample sets consisting of two or more units showing the full range of variations expected.
 - a. Sandwich panels: 7" x 12" units
 - b. Factory finished aluminum: 5" long sections
- D. Submit Installer Certificate, signed by installer, certifying compliance with project qualification requirements.
- E. Submit product reports from a qualified independent testing agency indicating each type and class of panel system complies with the project performance requirements, based on comprehensive testing of current products. Previously completed reports will be acceptable if for current manufacturer and indicative of products used on this project.
 - 1. Reports required (if applicable) are:
 - a. International Building Code Evaluation Report (AC 177)
 - b. Flame Spread and Smoke Developed (UL 723) Submit UL Card
 - c. Burn Extent (ASTM D 635)
 - d. Color Difference (ASTM D 2244)
 - e. Impact Strength (UL 972)

- f. Visible Light Transmission (VLT) (NFRC 202)
- g. Bond Tensile Strength (ASTM C 297 after aging by ASTM D 1037)
- h. Bond Shear Strength (ASTM D 1002)
- i. Beam Bending Strength (ASTM E 72)
- j. Insulation U-Factor (NFRC 100 or ASTM C-236)
- k. 1200°F Fire Resistance (SWRI)
- I. Fall Through Resistance (ASTM E 661)
- m. Class A Roof Covering Burning Brand (ASTM E 108)
- n. UL Listed Class A Roof System (UL 790)- Submit UL Card
- F. Provide superstructure design and structural analysis data for entire canopy assembly signed and sealed by the qualified professional engineer licensed in the state of New York and responsible for their preparation.
- 1.3 CLOSEOUT SUBMITTALS
 - A. Provide project maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Material and products shall be manufactured by a company continuously and regularly employed in the manufacture of specified materials for a period of at least ten consecutive years and which can show evidence of those materials being satisfactorily used on at least six projects of similar size, scope and location. At least three of the projects shall have been in successful use for ten years or longer.
 - 2. Panel system must be listed by an ANSI accredited Evaluation Service, which requires quality control inspections and fire, structural and water infiltration testing of sandwich panel systems by an accredited agency.
 - 3. Quality control inspections shall be conducted at least once each year and shall include manufacturing facilities, sandwich panel components and production sandwich panels for conformance with AC177 "Translucent Fiberglass Reinforced Plastic (FRP) Faced Panel Wall, Roof and Skylight Systems" as issued by the ICC-ES.
- B. Installer's Qualifications: Installation shall be by an experienced installer, which has been in the business of installing specified panel systems for at least two consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.

1.5 PERFORMANCE REQUIREMENTS

- A. The manufacturer shall be responsible for the configuration and fabrication of the complete canopy system, including the aluminum box beam superstructure.
 - 1. Structural Loads; Provide canopy system capable of handling loads factored in accordance with the 2020 New York State Building Code and as indicated on the structural drawings.
- B. Deflection Limits:
 - 1. Canopy Panels: Limited to I/60 of clear span.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver canopy system, components, and materials in manufacturer's standard protective packaging.
- B. Store canopy system panels on the long edge; several inches above the ground, blocked and under cover to prevent warping in accordance with manufacturer's storage and handling instructions.
- 1.7 WARRANTY
 - A. Provide manufacturer's and installer's written warranty agreeing to repair or replace canopy system work, which fails in materials or workmanship within five years from the date of delivery. Failure of materials or workmanship shall include excessive deflection, deterioration of finish on metal in excess of normal weathering, defects in accessories, insulated translucent sandwich panels and other components of the work.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - B. Structures Unlimited, Inc., Tel: (800) 225-3895 Fax: (603) 627-0798 Email: info@structuresunlimitedinc.com Basis-of-Design.
 - C. Approved equal
- 2.2 PANEL COMPONENTS
 - A. Face Sheets:
 - 1. Translucent faces: Manufactured from glass fiber reinforced thermoset resins, formulated specifically for architectural use.
 - a. Thermoplastic (e.g. polycarbonate, acrylic) faces are not acceptable.
 - b. Face sheets shall not deform, deflect, or drip when subjected to fire or flame.
 - 2. Interior face sheets:
 - a. Flame spread: Underwriters Laboratories (UL) listed, which requires periodic unannounced retesting, with flame spread rating no greater than 10 and smoke developed no greater than 350-400 when tested in accordance with UL 723.
 - b. Burn extent by ASTM D 635 shall be no greater than 1".
 - 3. Exterior face sheets:
 - a. Color stability: Full thickness of the exterior face sheet shall not change color more than 3 CIE Units DELTA E by ASTM D 2244 after 3 years outdoor South Florida weathering at 5° facing south, determined by the average of at least three white samples with and without a protective film or coating to ensure long-term color stability. Color stability shall be unaffected by abrasion or scratching.

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- b. Strength: Exterior face sheet shall be uniform in strength, impenetrable by hand held pencil and repel an impact minimum of 70 ft. lbs. without fracture or tear when impacted by a 3-1/4" diameter, 5 lb. free-falling ball per UL 972.
- c. Erosion Protection: Integral, embedded-glass erosion barrier.
- 4. Appearance:
 - a. Exterior face sheet: Smooth, .070" thick and white in color.
 - b. Interior face sheet: Smooth, .045" thick and white in color.
 - c. Face sheets shall not vary more than ± 10% in thickness and be uniform in color.
- B. Grid Core:
 - 1. Aluminum I-beam grid core shall be of 6063-T6 or 6005-T5 alloy and temper with provisions for mechanical interlocking of muntin-mullion and perimeter. Width of I-beam shall be no less than 7/16".
 - 2. I-beam Thermal break: Minimum 1", thermoset fiberglass composite.
- C. Laminate Adhesive:
 - 1. Heat and pressure resin type adhesive engineered for structural sandwich panel use, with minimum 25-years field use. Adhesive shall pass testing requirements specified by the International Code Council "Acceptance Criteria for Sandwich Panel Adhesives".
 - Minimum tensile strength of 750 PSI when the panel assembly is tested by ASTM C 297 after two exposures to six cycles each of the aging conditions prescribed by ASTM D 1037.
 - 3. Minimum shear strength of the panel adhesive by ASTM D 1002 after exposure to four separate conditions:
 - a. 50% Relative Humidity at 68° F: 540 PSI
 - b. 182° F: 100 PSI
 - c. Accelerated Aging by ASTM D 1037 at room temperature: 800 PSI
 - d. Accelerated Aging by ASTM D 1037 at 182° F: 250 PSI

2.3 PANEL CONSTRUCTION

- A. Provide sandwich panels of flat fiberglass reinforced translucent face sheets laminated to a grid core of mechanically interlocking I-beams. The adhesive bonding line shall be straight, cover the entire width of the I-beam and have a neat, sharp edge.
 - 1. Thickness: 2 3/4"
 - 2. Visible Light transmission: 23%
 - 3. Solar heat gain coefficient: 0.30.
 - 4. Panel U-factor: .53
 - 5. Grid pattern: Nominal size 8" x 20" pattern shoji
 - 6. Overlap joints to be painted KCRF to match framing.
- B. Standard panels shall deflect no more than 1.9" at 30 PSF in 10'-0" span without a supporting frame by ASTM E 72.
- C. Standard panels shall withstand 1200° F fire for minimum one hour without collapse or exterior flaming.

D. Canopy System:

- 1. Canopy system shall pass Class A Roof Burning Brand Test by ASTM E 108.
- 2. Roof system shall be UL listed as a Class A Roof by UL 790, which requires periodic unannounced factory inspections and retesting by Underwriters Laboratories.
- E. Canopy System shall meet the fall through requirements of OSHA 1910.23 as demonstrated by testing in accordance with ASTM E 661, thereby not requiring supplemental screens or railings.

2.4 BATTENS AND PERIMETER CLOSURE SYSTEM

- A. Closure system: Extruded aluminum 6063-T6 and 6063-T5 alloy and temper clamp-tite screw type closure system.
- B. Sealing tape: Manufacturer's standard, pre-applied to closure system at the factory under controlled conditions.
- C. Fasteners: Various series stainless steel screws for aluminum closures, excluding final fasteners to the building.
- D. Finish: Manufacturer's factory applied finish, which meets the performance requirements of AAMA 2604. Color to be selected from manufacturer's standards.

2.5 SUPERSTRUCTURE

- A. The superstructure shall be pre-fabricated of extruded aluminum alloy 6005-T5, 6005A-T61 or 6061-T6 box beams. Ferrous metals shall not be allowed. All parts shall be pre-assembled at the factory and knocked down for shipment. System shall be a Rigid Frame design.
- B. Finish: Manufacturer's factory applied finish, which meets the performance requirements of AAMA 2604. Color to be selected from manufacturer's standards.
- C. Aluminum structural system design and calculations must be furnished in accordance with the Aluminum Association "Specifications for Aluminum Structures" and the applicable building code. Design calculations must be prepared and stamped by a Professional Engineer licensed in the State of New York.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Installer shall examine substrates, supporting structure and installation conditions.
- B. Do not proceed with structural canopy installation until unsatisfactory conditions have been corrected by the general contractor.

3.2 PREPARATION

A. Metal Protection:

- 1. The general contractor shall prepare foundations, curbs, footings and/or lintels isolating dissimilar materials from aluminum system, which may cause electrolysis.
- 2. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
- 3. Where aluminum will contact concrete, masonry or pressure treated wood, protect against corrosion by painting contact surfaces with bituminous paint or method recommended by manufacturer.
- B. The general contractor shall install foundations, curbs, footings and/or lintels designed to withstand the thrust generated by the canopy.
- C. Anchor Bolts shall be supplied and installed by the general contractor. Canopy anchoring system will be per manufacturer's requirements.
- D. The general contractor shall provide temporary enclosures required.

3.3 INSTALLATION

- A. Install the canopy system in accordance with the manufacturer's installation recommendations and approved shop drawings.
- B. After other trades have completed work on adjacent material, carefully inspect translucent panel installation and make adjustments necessary to ensure proper installation.

3.4 CLEANING

- A. Clean the canopy system immediately after installation.
- B. Refer to manufacturer's written recommendations.
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SECTION 107316.20 PRE-MANUFACTURED CANOPY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended shop fabricated metal canopies.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

- A. ASCE 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
- B. ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2021.
- C. ASTM A500/A500M Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes 2021.
- D. ASTM A792/A792M Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process 2021a.
- E. ASTM C1107/C1107M Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink) 2017.
- F. ASTM E2950 Standard Specification for Metal Canopy Systems 2020.
- G. ASTM F593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs 2017.
- H. ASTM F3125/F3125M Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength 2019, with Editorial Revision (2020).
- I. AWS D1.1/D1.1M Structural Welding Code Steel 2020.

1.04 SUBMITTALS

- A. See Section 013000 Administrative Requirements, for submittal procedures.
- B. Product Data: Submit product data sheets, including material descriptions and finishes, and preparation instructions and recommendations.
- C. Shop Drawings: Prior to commencement of fabrication, submit detailed shop drawings, showing profiles, sections of components, finishes, and fastening details.
- D. Design Data: Submit comprehensive structural analysis of design for the specified loads. Stamp and sign calculations by professional engineer licensed to practice in the State of New York.
- E. Designer's Qualification Statement.
- F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.
 - 1. Comply with applicable code for submission of design calculations as required for acquiring permits.
 - 2. Cooperate with regulatory agency or authorities having jurisdiction (AHJ), and provide data as requested.
- B. Perform work in accordance with AISC 303.
- C. Manufacturer Qualifications: Company specializing in the manufacture of products similar to those required for this project.

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1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site ready for erection.
- B. Package using methods that prevent damage during shipping and storage on site.
- C. Store materials under cover and elevated above grade.

1.07 WARRANTY

- A. See Section 017800 Closeout Submittals, for additional warranty requirements.
- B. Metal Canopies: Correct defective work within a two year period after Date of Substantial Completion.
- C. Finish Warranty: Provide manufacturer's one year warranty on factory finish against cracking, peeling, and blistering.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Canopies:
 - 1. MASA Architectural Canopies-Extrudeck 100-Basis of Design.
 - 2. Substitutions: See Section 016000 Product Requirements.

2.02 METAL CANOPIES

- A. Shop Fabricated Metal Canopy
 - 1. Pre-engineered system complying with ASTM E2950.
 - Design and fabricate metal canopy system to resist wind, snow, live, and seismic loads without failure, damage, or permanent deflection in accordance with ASCE 7:
 a. Loads: As indicated on drawings.
 - Thermal Movement: Design canopy system to accommodate thermal movement caused by ambient temperature range of 120 degrees F and surface temperature range of 180 degrees F without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects on assembly components.
- B. Configuration: canopy clearance and fascia profile , and roof covering design as indicated on drawings.

2.03 COMPONENTS

- A. Structural Steel Framing:
 - 1. Hanger Rods: ASTM A500/A500M, Grade B, round or rectangular tubing, sized to suit project design load requirements.
 - 2. Base and Top Plates: ASTM A36/A36M, with pre-drilled bolt holes.
 - 3. Beams: Wide flange, ASTM A572/A572M Grade 50.
 - 4. Other Structural Steel Members: ASTM A36/A36M.
- B. Covering:
 - 1. Sheet Metal Decking: Interlocking metal panels.
 - a. Panel Size: 6 inches wide by 3 inches deep; [____] gauge, [.090] inch thickness.
 - b. Material: ASTM A792/A792M aluminum-zinc alloy coated to AZ50/AZM150.
 - c. Provide canopy manufacturer's standard clip type fasteners for attaching covering to structural beams.
- C. Fascia: Manufacturer's standard flat profile.
 - 1. Material: Aluminum Composite Material (ACM) panel.
- D. Anchor Bolts: ASTM A307 or ASTM A572/A572M, formed with bent shank, assembled with template for casting into concrete.
 - 1. Minimum exposed thread of 7 inches above footing and 23 inch minimum embedment.
 - 2. Provide nuts and washers as required for column leveling and plumbing.
- E. Exposed Downspouts: Aluminum with finish and color to match canopy covering, manufacturer's recommended size for canopy specified.
- F. Concealed Gutters: Incorporated into fascia system.

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CANOPY

2.04 SHOP FABRICATION

- A. Provide a complete system ready for erection at project site.
- B. Shop fabricate to the greatest extent possible; disassemble if necessary for shipping.
- C. Perform welding in accordance with AWS D1.1/D1.1M.
- D. Fabricate connections for bolt, nut, and washer connectors.

2.05 FINISHES

- A. Structural Steel Framing:
 - 1. Shop Primer: Rust-inhibitive red oxide.
 - 2. Finish Coating: As specified in Section 099600.
- B. Steel Decking: Polyester baked enamel finish; color as selected from manufacturer's standard range.
- C. Fascia and soffit panels: Polyester baked enamel finish; color as selected from manufacturer's standard range.

2.06 ACCESSORIES

- A. Structural Bolts: ASTM F3125/F3125M, Grade A325, minimum 3/4 inch diameter.
- B. Trim, Closure Pieces, and Flashings: Same material, thickness and finish as sheet metal decking; factory-fabricated to required profiles.
 1. Exposed Fasteners: Not permitted.
- C. Grout: ASTM C1107/C1107M; non-shrinking; premixed compound consisting of nonmetallic aggregate, cement, water-reducing and plasticizing agents.
- D. Fasteners, Non-Structural: ASTM F593 stainless steel or ASTM A307 carbon steel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and site area for conditions that might prevent satisfactory installation.
- B. Verify that wall anchors are in correct position.
- C. Do not proceed with installation until all conditions are satisfactory.

3.02 INSTALLATION - FRAMING

- A. Erect framing in accordance with AISC 303.
- B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation.
- C. Do not field cut or alter structural members without approval.
- D. After erection, prime welds, abrasions, and surfaces not shop primed.

3.03 INSTALLATION - CANOPY COVERING

- A. Install in accordance with manufacturer's instructions.
- B. Fasten metal decking to steel support members, aligned level and plumb.
- C. Install fascia panels, trim, and flashing.
- D. Separate dissimilar metals using concealed bituminous paint.
- E. Touch-up damaged finish coating using material provided by manufacturer to match original coating.

3.04 TOLERANCES

A. Maximum Variation from Level: Plus/Minus 1/8 inch.

3.05 CLEANING

A. Clean surfaces of dust and debris; follow manufacturer's cleaning instructions for the finish used.

PRE-MANUFACTURED CANOPY

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3.06 PROTECTION

A. Protect canopy after installation to prevent damage due to other work until Date of Substantial Completion.

END OF SECTION

PART 1 GENERAL

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1.01 SECTION INCLUDES

- A. Exterior manual roller shades.
- В. Exterior motorized roller shades.
- C. Motor controls.

1.02 RELATED REQUIREMENTS

- A. Section 061000 Rough Carpentry: Concealed wood blocking for attachment of headrail brackets.
- Section 262726 Wiring Devices: Finish requirements for wall controls specified in this В. section.

1.03 REFERENCE STANDARDS

- Α. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi 2015 (Reapproved 2021)e1.
- NFPA 70 National Electrical Code Most Recent Edition Adopted by Authority Having R Jurisdiction, Including All Applicable Amendments and Supplements.
- NFPA 701 Standard Methods of Fire Tests for Flame Propagation of Textiles and Films C. 2019.
- D. UL 325 Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.
- E. WCMA A100.1 Safety of Window Covering Products 2018.

1.04 ADMINISTRATIVE REQUIREMENTS

- Coordination: Α.
 - Where motorized shades are to be controlled by control systems provided under other 1. sections, coordinate the work with other trades to provide compatible products.
 - 2. Coordinate the work with other trades to provide rough-in of electrical wiring as required for installation of hardwired motorized shades.
- Β. Sequencing:
 - Do not fabricate shades until field dimensions for each opening have been taken with 1. field conditions in place.
 - 2. Do not install shades until final surface finishes and painting are complete.

1.05 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets, including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
- B. Shop Drawings: Include shade schedule indicating size, location and keys to details, head, jamb and sill details, mounting dimension requirements for each product and condition, and operation direction.
- Certificates: Manufacturer's documentation that line voltage components are UL listed or C. UL recognized.
- Verification Samples: Minimum size 6 inches square, representing actual materials, color D. and pattern.
- Manufacturer's Instructions: Include instructions for storage, handling, protection, E. examination, preparation, and installation of product.
- Operation and Maintenance Data: List of all components with part numbers, sources of F. supply, and operation and maintenance instructions; include copy of shop drawings.
- Warranty: Submit sample of manufacturer's warranty and documentation of final executed G. warranty completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this type with minimum five years of documented experience with shading systems of similar size and type.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.
- B. Handle and store shades in accordance with manufacturer's recommendations.

1.08 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.09 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 ROLLER SHADES

- A. General:
 - 1. Provide shade system components that are easy to remove or adjust without removal of mounted shade brackets.
 - 2. Provide shade system that operates smoothly when shades are raised or lowered.
 - 3. Motorized Shades: Motor system housed inside roller tube, controlling shade movement via motor controls indicated; listed or recognized to UL 325.
 - a. Comply with NFPA 70.
 - b. Electrical Components: Listed, classified, and labeled as suitable for the purpose intended. Where applicable, system components to be FCC compliant.
 - c. Motors: Size and configuration as recommended by manufacturer for the type, size, and arrangement of shades to be operated; integrated into shade operating components and concealed from view; fully compatible with controls to be installed.
- B. Exterior Roller Shades (WT-1) Basis of Design: Blue Shade by Draper Industries Inc. Architectural and Heavy Duty Series
 - 1. Description: Single roller, manually operated fabric window shade system complete with headbox, side channels, crank operator, mounting brackets, roller tubes, hembars, hardware, and other components necessary for complete installation.
 - a. Drop Position: Regular roll.
 - b. Roll Direction: Roll down, closed position is at window sill.
 - c. Size: Contractor to verify in field.
 - d. Fabric: As indicated under Shade Fabric article.
 - 2. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
 - a. Hardware Type: Exposed headbox.
 - 3. Roller Tubes: As required for type of shade operation; designed for removal without removing mounting hardware.
 - a. Material: Steel with galvalume coating, with wall thickness selected by manufacturer.
 - b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
 - c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge.
 - 4. Hembars: Weighted design to maintain bottom of shade straight and flat.
 - 5. Manual Operation:

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		a.	Clutch Operator: Manufacturer's standard material and design, permanently lubricated.
		b.	Drive Chain: Continuous loop stainless steel beaded ball chain, 95 pounds minimum breaking strength. Provide upper and lower limit stops.
		С.	Shade Lift Assistance: Manufacturer's standard spring device contained in the idler end of roller tube, to reduce force required to lift shades; as required based on shade weight.
	•	d.	Chain Retainer:
	6.	Aco	
		a.	Side Channels: As required in exterior applications for guiding and securing shade material.
		b.	Exposed Headbox: Extruded aluminum, size as required to conceal shade mounting; Color to be determined by Architect.
		C.	Fasteners: Noncorrosive, and as recommended by shade manufacturer.
C.	Exte by [erior Drape	Roller Shades - (WT-2) Basis of Design: Blue Shade Arc Motorized Roller Shade
	1.	De: hea her a.	scription: Single roller, motor-operated fabric window shade system complete with adbox, side channels, motorized operator, controls, mounting brackets, roller tubes, nbars, hardware, and other components necessary for complete installation. Drop Position: Regular roll.
		b.	Roll Direction: Roll down, closed position is at window sill.
		c.	Size: Contractor to verify in field.
		d.	Fabric: As indicated under Shade Fabric article.
	2.	Bra ind	ckets and Mounting Hardware: As recommended by manufacturer for mounting icated and to accommodate shade fabric roll-up size and weight.
	3.	Ro ren	ler Tubes: As required for type of shade operation; designed for removal without noving mounting hardware.
		a.	Material: Extruded aluminum or steel with galvalume coating, with wall thickness selected by manufacturer.
	4.	He ma	mbars: Designed to maintain bottom of shade straight and flat, selected from nufacturer's standard options.
	5.	Aco	cessories:
		a.	Exterior Side Channels: As required in exterior applications for guiding and securing shade material.
		b.	Exposed Headbox: Extruded aluminum, size as required to conceal shade mounting; clear anodized finish.
2.03 SH	IADE	FAE	BRIC
А.	Fab	ric:	Nonflammable, color-fast, impervious to heat and moisture, and able to retain its
	sha	pe u	nder normal operation.
	1.	Ма	nufacturers:
		a.	Mermet Corporation; E-Screen - 1%: www.mermetusa.com/#sle.
	~	b.	Substitutions: See Section 016000 - Product Requirements.
	2. 2	IVIA Dou	terial: 36% Fiberglass, 64% Vinyi.
	э.	2	Flammahility Pass NEPA 701 large and small tests
		b.	Fungal Resistance: No growth when tested according to ASTM G21.
	4.	Op	enness Factor: 1%.
	5.	Ŵe	ight: 11.6 ounces per square yard.
	6.	Ro	I Width: 98 inches.

7. Color: As indicated on drawings.

2.04 MOTOR CONTROLS

- A. Unless specifically indicated to be excluded, provide all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the control intent indicated.
- B. Provide all components and connections necessary to interface with other systems as indicated.

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C. Manual Controls:

- 1. Control Functions:
 - a. Open: Automatically open controlled shade(s) to fully open position when button is pressed.
 - b. Close: Automatically close controlled shade(s) to fully closed position when button is pressed.
- 2. Wall Controls: Provided by shade manufacturer.
 - a. Finish: As specified in Section 262726.

2.05 ROLLER SHADE FABRICATION

- A. Field measure finished openings prior to ordering or fabrication.
- B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
 - 1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch space between bottom bar and window stool.
 - 2. Horizontal Dimensions Inside Mounting: Fill openings from jamb to jamb.
 - 3. Horizontal Dimensions Inside Mounting: Provide symmetrical light gaps on both sides of shade not to exceed 3/4 inch total.
- C. Dimensional Tolerances: As recommended in writing by manufacturer.
- D. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine finished openings for deficiencies that may preclude satisfactory installation.
- B. Start of installation shall be considered acceptance of substrates.

3.02 PREPARATION

- A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.
- B. Coordinate with window installation and placement of concealed blocking to support shades.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

3.04 CLEANING

- A. Clean soiled shades and exposed components as recommended by manufacturer.
- B. Replace shades that cannot be cleaned to "like new" condition.

3.05 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.

3.06 PROTECTION

- A. Protect installed products from subsequent construction operations.
- B. Touch-up, repair, or replace damaged products before Substantial Completion.

3.07 MAINTENANCE

A. See Section 017000 - Execution and Closeout Requirements, for additional requirements relating to maintenance service.

END OF SECTION

SECTION 123216 - MANUFACTURED PLASTIC-LAMINATE-FACED CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes plastic-laminate-faced cabinets of stock design.
- B. Related Requirements:
 - 1. Section 064023 "Interior Architectural Woodwork." for solid surface countertops.
 - 2. Section 092216 "Non-Structural Metal Framing" for reinforcements in metal-framed partitions for anchoring casework.
 - 3. Section 096513 "Resilient Base and Accessories" for resilient base applied to plasticlaminate-faced casework.

1.2 DEFINITIONS

- A. Definitions in the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" apply to the work of this Section.
- B. MDF: Medium-density fiberboard.
- C. Hardwood Plywood: A panel product composed of layers or plies of veneer, or of veneers in combination with lumber core, hardboard core, MDF core, or particleboard core, joined with adhesive, and faced both front and back with hardwood veneers.

1.3 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that casework can be supported and installed as indicated.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Show fabrication details, including types and locations of hardware. Show installation details, including field joints and filler panels. Indicate manufacturer's catalog numbers for casework.
- C. Keying Schedule: Include schematic keying diagram and index each key set to unique designations that are coordinated with the Contract Documents.
- D. Samples: For cabinet finishes.
- E. Samples for Initial Selection: For cabinet finishes.

1.5 INFORMATIONAL SUBMITTALS

- A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- B. Sample Warranty: For special warranty.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer for installation of units required for this Project.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver casework only after painting, utility roughing-in, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas where environmental conditions meet requirements specified in "Project Conditions" Article.
- B. Keep finished surfaces covered with polyethylene film or other protective covering during handling and installation.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install casework until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period. Maintain temperature and relative humidity during the remainder of the construction period in range recommended for Project location by the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
- B. Established Dimensions: Where casework is indicated to fit to other construction, establish dimensions for areas where woodwork is to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.
- C. Locate concealed framing, blocking, and reinforcements that support casework by field measurements before being enclosed, and indicate measurements on Shop Drawings.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Delamination of components or other failures of glue bond.
 - b. Warping of components.
 - c. Failure of operating hardware.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. <u>Manufacturers:</u> Subject to compliance with requirements, provide products by one of the following:
 - 1. LSI Corporation of America. Basis-of-Design
 - 2. TMI Systems Design Corporation.
 - 3. Approved Equal.
- B. Source Limitations: Obtain plastic-laminate-faced cabinets from single manufacturer.

2.2 CASEWORK, GENERAL

- A. Quality Standard: Unless otherwise indicated, comply with the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" for grades of casework indicated for construction, finishes, installation, and other requirements.
 - 1. Grade: Premium.
 - 2. Provide certificates from AWI certification program indicating that casework, including installation, complies with requirements of grades specified.
- B. Product Designations: Drawings and schedule at the end of this section, indicate sizes, configurations, and finish materials of manufactured plastic-laminate-faced cabinets by

MANUFACTURED PLASTIC-LAMINATE FACED CASEWORK

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referencing designated manufacturer's catalog numbers. Other manufacturers' casework of similar sizes and door and drawer configurations, of same finish materials, and complying with the Specifications may be considered. See Section 016000 "Product Requirements."

2.3 CASEWORK

A. Design:

1.

- 1. Flush overlay.
- B. Exposed Materials:
 - Plastic Laminate: Grade HGL. (HPL 1, 2)
 - a. Colors: To be selected from Manufacturer's standard colors
 - b. Allow two colors to be selected for each room.
 - 2. Unless otherwise indicated, provide specified edgebanding on all exposed edges.
- C. Semiexposed Materials:
 - 1. Thermoset Decorative Panels: Provide thermoset decorative panels for semiexposed surfaces unless otherwise indicated.
 - a. Provide plastic laminate of same grade as exposed surfaces for interior faces of doors and drawer fronts and other locations where opposite side of component is exposed.
 - 2. Hardboard: Use only for cabinet backs where exterior side of back is not exposed.
 - 3. Metal for Steel Drawer Pans: Cold-rolled, carbon-steel sheet complying with ASTM A 1008/A 1008M; matte finish; suitable for exposed applications.
 - 4. Unless otherwise indicated, provide specified edgebanding on all semiexposed edges.
- D. Concealed Materials:
 - 1. Solid Wood: Any hardwood or softwood species, with no defects affecting strength or utility.
 - 2. Plywood: Hardwood plywood.
 - 3. Plastic Laminate: Grade BKL.
 - Particleboard.
 - 5. MDF.
 - 6. Hardboard.

2.4 MATERIALS

- A. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.
- B. Hardwood Plywood: HPVA HP-1, particleboard core except where veneer core is indicated.
- C. Softwood Plywood: DOC PS 1.
- D. Particleboard: ANSI A208.1, Grade M-2.
- E. MDF: ANSI A208.2, [Grade 130] < Insert grade>.
- F. Hardboard: ANSI A135.4, Class 1 Tempered.
- G. Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3.
- H. Products: Refer to Section 090000 Color and Finish Schedule.for Manufacturer, Product, and Finish.
- I. Edgebanding for Plastic Laminate: Rigid PVC extrusions, through color with satin finish, 3 mm thick at doors and drawer fronts, 1 mm thick elsewhere.
- J. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

K. Edgebanding for Thermoset Decorative Panels: PVC or polyester edgebanding matching thermoset decorative panels.

2.5 FABRICATION

- A. Plastic-Laminate-Faced Cabinet Construction: As required by referenced quality standard, but not less than the following:
 - 1. Bottoms and Ends of Cabinets, and Tops of Wall Cabinets and Tall Cabinets: 3/4-inch particleboard.
 - 2. Shelves: 3/4-inch-thick plywood or 1-inch-thick particleboard.
 - 3. Backs of Cabinets: 1/2-inch-thick particleboard or MDF where exposed, 1/4-inch hardboard dadoed into sides, bottoms, and tops where not exposed.
 - 4. Drawer Fronts: 3/4-inch particleboard.
 - 5. Drawer Sides and Backs: 1/2-inch particleboard or MDF, with glued dovetail or multipledowel joints.
 - 6. Drawer Bottoms: 1/4-inch hardwood plywood glued and dadoed into front, back, and sides of drawers. Use 1/2-inch material for drawers more than 24 inches wide.
 - 7. Drawer Bodies: Steel drawer pans formed from 0.0359-inch-thick metal, metallic phosphate treated, and finished with manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat with a minimum dry film thickness of 1 mil for topcoat and 2 mils for system.
 - 8. Doors 48 Inches High or Less: 3/4 inch thick, with particleboard or MDF cores.
 - 9. Doors More Than 48 Inches High: 1-1/16 inches thick, with honeycomb cores and solid hardwood stiles and rails.
 - 10. Doors More Than 48 Inches High: 1-1/8 inches thick, with particleboard cores.
- B. Filler Strips: Provide as needed to close spaces between cabinets and walls, ceilings, and indicated equipment. Fabricate from same material and with same finish as cabinets.

2.6 CASEWORK HARDWARE AND ACCESSORIES

- A. Hardware, General: Unless otherwise indicated, provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware.
 - 1. Use threaded metal or plastic inserts with machine screws for fastening to particleboard except where hardware is through-bolted from back side.
- B. Butt Hinges: Chrome-plated, semiconcealed, five-knuckle hinges complying with BHMA A156.9, Grade 1, with antifriction bearings and rounded tips. Provide two hinges for doors less than 48 inches high, and provide three hinges for doors more than 48 inches high.
- C. Pulls: Solid aluminum or chrome-plated brass wire pulls, fastened from back with two screws.
- D. Drawer Slides: BHMA A156.9, Type B05091.
 - 1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated, steel ball-bearing slides.
 - 2. Box Drawer Slides: Grade 1, for drawers not more than 6 inches high and 24 inches wide.
 - 3. File Drawer Slides: Grade 1HD-100, for drawers more than 6 inches high or 24 inches wide.
 - 4. Pencil Drawer Slides: Grade 1, for drawers not more than 3 inches high and 24 inches wide.
- E. Drawer and Hinged Door Locks: Cylindrical (cam) type, five-pin tumbler, brass with chromeplated finish, and complying with BHMA A156.11, Grade 1.
 - 1. Provide a minimum of two keys per lock and six master keys.
 - 2. Provide locks on all doors and drawers.
- F. Adjustable Shelf Supports: Single-pin metal shelf rests complying with BHMA A156.9, Type B04013.

- G. Wire Mesh Doors: Powder Coated Steel.
- H. Totes: High Impact Polyethlene.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of framing and reinforcements, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 CASEWORK INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Install casework level, plumb, and true; shim as required, using concealed shims. Where casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.
- C. Base Cabinets: Set cabinets straight, level, and plumb. Adjust subtops within 1/16 inch of a single plane. Align similar adjoining doors and drawers to a tolerance of 1/16 inch. Bolt adjacent cabinets together with joints flush, tight, and uniform.
- D. Wall Cabinets: Hang cabinets straight, level, and plumb. Adjust fronts and bottoms within 1/16 inch of a single plane. Fasten to hanging strips, masonry, framing, wood blocking, or reinforcements in walls and partitions. Align similar adjoining doors to a tolerance of 1/16 inch.
- E. Fasten cabinets to adjacent cabinets and to masonry, framing, wood blocking, or reinforcements in walls and partitions to comply with the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
- F. Install hardware uniformly and precisely. Set hinges snug and flat in mortises unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- G. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

3.3 CLEANING

- A. Repair or remove and replace defective work as directed on completion of installation.
- B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

END OF SECTION 123216

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Name	Description	Size	LSI #
BC-1	(2) 6" top drawer/ (2) doors w/ roll-out shelves	33" x 34" 24"	1722
BC-2	(2) 6" top drawer/(3) drawers/(1) adjustable shelf	33" x 34" x 24"	1223
BC-3	(2) 6" top drawer/(3) drawers/(1) adjustable shelf	33" x 34" x 24"	1227
BC-4	(4) equal drawers	36" x 34" x 24"	1240
BC-5	(2) doors/ (2) adjustable shelves	36" x 34" x 24"	1001
BC-6	(1) door/ (1) adjustable shelf	18" x 34" x 24"	1012
BC-7		27" x 34" x 24"	1240
BC-8	(2) doors/ (2) dividers/ (18 - 21) tote trays	36" x 34" x 24"	1612
BC-9	(1) door/ (1) adjustable shelf	21" x 34" x 24"	1022
BC-10	(2) Doors/ sink	36" x 34" x 24"	1131
BC-11	(1) Door/sink	18" x30" x 22"	1121
BC-12	(3) Equa Drawers	18" x 30" x 22"	1220
BC-13	(1) door/ (1) adjustable shelf	15" x 34" x 24"	1022
BC-14	(1) door/ (1) adjustable shelf	24" x 34" x 24"	1022
BC-15	(4) equal drawers	24" x 34" x 24"	1240
BC-16	(2) doors/ (2) adjustable shelves	30" x 34" x 24"	1001
ADA-1	ADA Sink/Vanity	33" x 34" x 24"	1136
ADA-2	ADA Sink/Vanity	36" x 34" x 24"	1136
ADA-3	ADA Sink/Vanity	30" x 34" 24"	1136
WC-1	(2) Doors/ (1) Adjustable shelf	36" x 30" x 14"	3052
WC-2	(2) Doors/ (1) Adjustable shelf	33" x 30" x 14"	3052
WC-3	(1) Door/ (1) Adjustable shelf	18" x 30" x 14"	3062
WC-4	(2) Doors/ (1) Adjustable shelf	27 x 30" x 14"	3052
WC-5	(2) Doors/ (1) Adjustable Shelf/Glazed Panels	33" x 30" x 14"	3056
WC-6	(2) Doors/ (1) Adjustable Shelf/Glazed Panels	36" x 30" x 14"	3056
WC-7	(2) Doors/ (1) Adjustable Shelf/Glazed Panels	30" x 30" x 14"	3056
WC-8	(1) Door/ (1) Adjustable shelf/Glazed Panel	21" x 30" x 14"	3066
WC-9	(1) Door/ (1) Adjustabe Shelv/Glazed Panel	12" x 30" x 14"	3076
	Open Wall Cabinet/ (2) vertical dividers/ (3) adjustable		
WC-10	shelves	36" x 30" x 13"	3381
WC-11	Open Wall Shelving	7' long , 18" wide	114
WC-12	(1) Door/ (1) Adjustabe Shelv/Glazed Panel	24" x 30" x 14"	3076
WC-13	(2) Doors/ (1) Adjustable shelf	30" x 30" x 14"	3052
WC-14	(2) Doors/ (1) Adjustable shelf	24 x 30" x 14"	3052
TC-1	wardrobe/ (1) fixed shelf/ (4) adjustable shelves	48" x 84" x 24"	5252
MC-1	Tall Open Storage: Wire Cage Fronts	27" x 84" x 31"	8921
MC-2	Tall Open Storage; Wire Cage Fronts	27" x 84" x 31"	8295
MC-3	Mixed-Use Storage; Wire Cage Front	27" x 84" x 31"	8213
MC-4	Mixed-Use Storage; Wire Cage Front	27" x 84" x 31"	8217
MC-5	Drum Storage; Wire Cage Front	48" x 84" x 31"	8423
MC-6	NOT USED		
	Tall Instrument Storage; Wire Cage Front; 15		
MC-7	Compartments	27" x 84" x 31"	8207
	Tall Instrument Storage; Wire Cage Front; 10		
Mc-8	Compartments	27" x 84" x 31"	8223
	Tall Instrument Storage; Wire Cage Front; 10		
Mc-9	Compartments	27" x 84" x 31"	8227

BC = Base Cabinet ADA = ADA sink/vanity WC = Wall Cabinet TC = Tall Cabinet THIS PAGE INTENTIONALLY LEFT BLANK