PROJECT MANUAL
GREENWOOD LAKE UNION FREE SCHOOL DISTRICT
2023 CAPITAL IMPROVEMENT PROJECT

1247 Lakes Road

Monroe, New York 10950

VOLUME 1

CPL PROJECT NO.: R23.00331.00
DOCUMENT DATE: October 28, 2024

NEW YORK STATE EDUCATION DEPARTMENT CONTROL NUMBER(S):

Building Name:	Control Number:
Greenwood Lake Middle School	44-21-11-02-0-001-027
Greenwood Lake Elementary School	44-21-11-02-0-002-016

DESIGN PROFESSIONALS CERTIFICATION

The undersigned certifies that, to the best of his or her knowledge, information and belief, that the "Design conforms to all applicable provisions of the current New York State Uniform Fire Prevention Code, Building Code and Energy Conservation Code and that the "Work will not involve known or suspected ACBM".

ARCHITECT / ENGINEER:
CPL
26 IBM Road
Poughkeepsie , New York 12601
(845)567-6700

OWNER:
Greenwood Lake Union Free School District
PO Box 8
Greenwood Lake, New York 10925
(845) 782-8678

ARCHITECTURE
ENGINEERING
PLANNING
CPLteam.com

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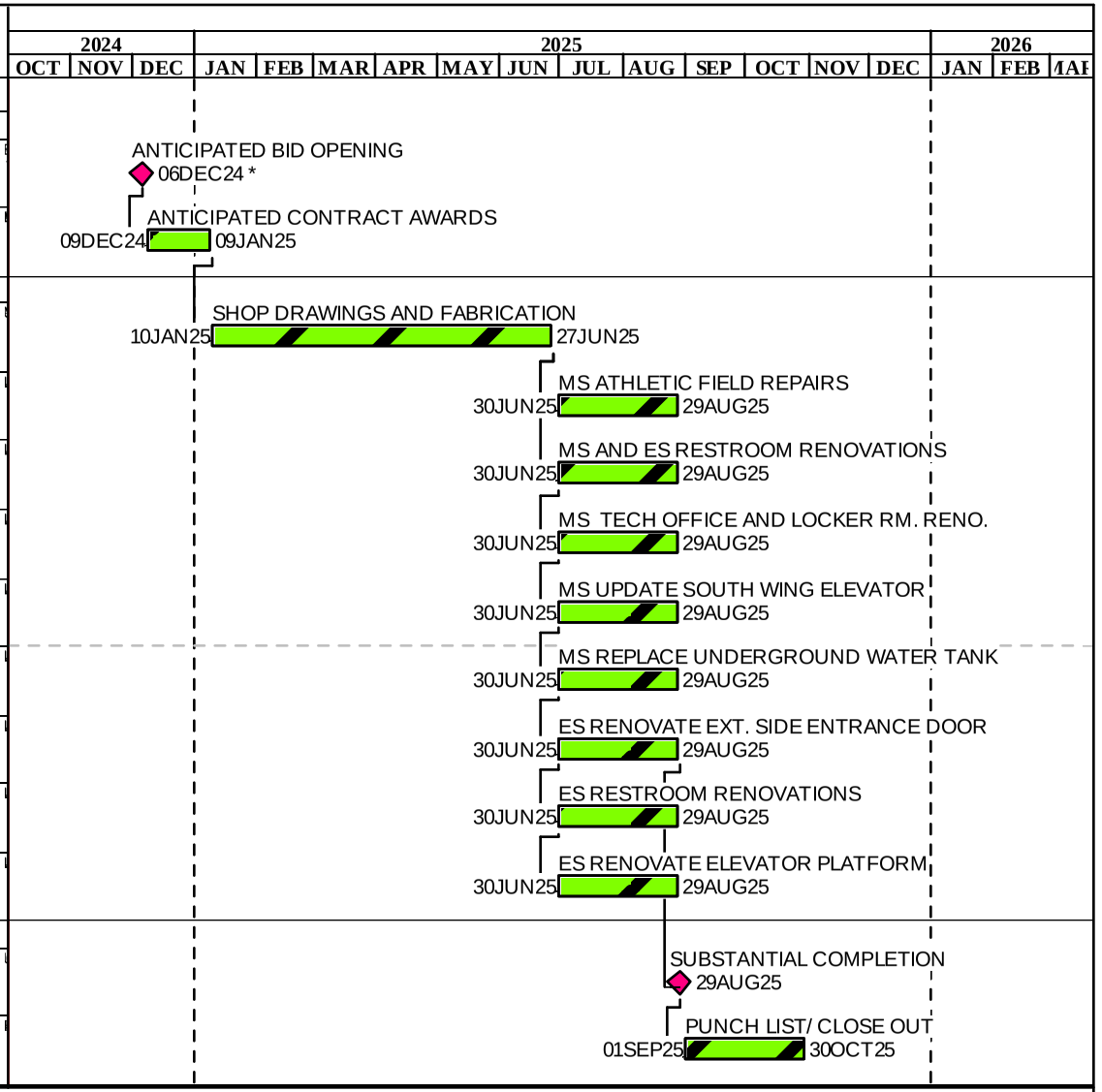

Company name	Triton
Project name	GLUFSD Bid Sche...
Project title	Greenwood Lake UFSI
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GREENWOOD LAKE SCHOOL DISTRICT

BID SCHEDULE

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SECTION 001113
ADVERTISEMENT FOR BIDS

PART 1 - GENERAL

1.01 PROJECT INFORMATION

A. The owner, Greenwood Lake Union Free School District invites bids for the Greenwood Lake UFSD - 2023 Capital Improvement Project located at 1247 Lakes Road, Monroe,10950 & 80 Waterstone Road, Greenwood Lake, 10925. Separate sealed bids will be received by the Greenwood Lake Union Free School District (Attention: Ann Lierow, Assistant Superintendent for Business) at the District Offices at 1247 Lake Road until 1:00 PM, local time on December 6, 2024, at which time they will be publicly opened and read aloud.

B. Complete digital sets of Bidding Documents, drawings and specifications, may be obtained online as a download at the following website: cplteamplanroom.com.

C. Complete sets of Hard Copy Bidding Documents, Drawings and Specifications, may be obtained from REVplans, 28 Church Street, Unit 7, Warwick, NY 10990 Tel: 1-877-272-0216, upon depositing the sum of $100.00 for each combined set of documents. Checks or money orders shall be made payable to Greenwood Lake Union Free School District. Plan deposit is refundable in accordance with the terms in the Instructions to Bidders to all submitting bids. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs

D. Bidding Documents may be examined on or after November 8, 2024 at the following locations;
   1. www.cplteamplanroom.com
   2. Eastern Contractors Association, Inc., 6 Airline Drive, Albany, NY 12205, tel: 518-869-0961
   3. McGraw Hill Construction (Dodge): 71 Fuller Road, Albany, NY 12205, tel: 800-393-6343
   Please note: REVplans (cplteamplanroom.com) is the designated location and means for distributing and obtaining all bid package information. Only those Contract Documents obtained in this manner will enable a prospective bidder to be identified as an official plan holder of record. The Provider takes no responsibility for the completeness of Contract Documents obtained from other sources. Contract Documents obtained from other sources may not be accurate or may not contain addenda that may have been issued.

E. All bid addenda will be transmitted to registered plan holders via email and will be available at cpl.getpropeller.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

F. A Pre-Bid Meeting/walk-through for this Project will be held on November 21,2024 at 3:00pm, Starting at Greenwood Lake Middle School 1247 Lake Rd, Monroe NY 10950. Attendance by bidders is strongly recommended, but not required, for submitting a bid. Prospective bidders may visit the sites during business hours by appointment by contacting Robert Porras, rporras@gwlufsd.org at (845) 782-8678 x 51120.

G. A Bidder whose bid is accompanied by a certified check or other security in accordance with the bidding requirements and public advertisement, and who returns a complete set of Bidding Documents in good condition within thirty (30) days following the award of the Contract covered by such Bidding Documents or the rejection of such bid, shall receive a refund of the full amount of the deposit for (1) copy of the Bidding Documents. Partial reimbursement in an amount equal to the deposit for (1) set of the Bidding Documents, less the actual cost of reproduction of the Bidding Documents, shall be made for the return of all other copies of the Bidding Documents in good condition within thirty (30) days following the award of the Contract or the rejection of the bids covered by such Bidding Documents.

H. Attention of the Bidder is particularly called to the Owner's sales tax exemption and the minimum wage rates to be paid under the contract.

I. In addition, the Bidding Documents for this project 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.

J. Bids shall be prepared as set forth in INSTRUCTIONS TO BIDDERS, enclosed in a sealed envelope bearing on its face the name and address of the Bidder and the title of the Work to which the bid enclosed relates. Each Bidder shall deposit with its bid, security in an amount not less than five percent (5%) of the base bid in the form and subject to the conditions provided in the “Instructions to Bidders.” No Bidder may withdraw his bid within forty-five (45) days after the actual bid opening.

K. 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.

END OF SECTION 001113

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 002000

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AIA® Document A701® – 2018

Instructions to Bidders

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

2023 Capital Improvements Project
Greenwood Lake Middle School SED NO: 44-21-11-02-0-001-027
Greenwood Lake Elementary School SED NO: 44-21-11-02-0-002-016

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

Greenwood Lake Union Free School District
PO Box 8
Greenwood Lake, New York 10925

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

CPL Architects, Engineers, Landscape Architect and Surveyor, D.P.C.
d/b/a CPL
26 IBM Road
Poughkeepsie, New York 12601

TABLE OF ARTICLES

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:

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

§ 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....., Telephone.....

§ 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 Documents through the print method stated in the Advertisement or Invitation to Bid, or as follows:
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

§ 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)

§ 4.1.8 In accordance with the Wicks Reform 2008, Single Prime Contracts for projects under the monetary threshold of $500,000 the bid shall be accompanied by a separate sealed envelope naming each subcontractor for the Plumbing, HVAC and Electrical work, with the amounts paid to each Contractor. This list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs. This list must be open for public inspection.

§ 4.1.9 Pursuant to New York State Department of Labor requirements for State Public Work Projects or Covered Private Projects, Contractor to submit with the bid, a copy of their Contractor Certificate of Registration. Refer to DOL for details.

§ 4.2 Bid Security

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

§ 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 a paper Bid, or as indicated below:
(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their 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 each be equal to one hundred (100) percent of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than 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.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

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

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

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

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

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013.)

.5 Drawings

Number	**Title**	**Date**

.6 Specifications

Section	**Title**	**Date**	**Pages**

.7 Addenda:

Number	**Date**	**Pages**

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

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

[ ] The Sustainability Plan:

Title	**Date**	**Pages**

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

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

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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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 the Greenwood Lake Union Free School District, 2023 Capital Improvement 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 prepared by QuEST&T, dated February 9, 2024, is appended to this Document.

C. 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.
      c. Section 028213 “Asbestos Abatement” for procedures on the handling, removal and disposal of asbestos containing materials

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION 003126

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SECTION 004010
FORM OF PROPOSAL – GENERAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
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,_____

1. 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 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, they 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.
   1. Allowance Amount:
      $

1.06 UNIT PRICES (REFERENCE SPECIFICATION SECTION 012700)

A. Enter in unit prices from spec section 012200. (Unit prices are used in anticipation that there will be additional quantities of materials and labor not expressly indicated on the contract documents.)
   1. Unit Price No. GC-1:
      $ Per Square Foot of Fireproofing

1.07 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.
   1. Alternate No. GC-01;(LVT flooring and resilient base in ES Lobby):
      ADD/DEDUCT ($)
      DOLLARS
   2. Alternate No. GC-02;(Not Used):
   3. Alternate No. GC-03;(Elevator controller & associated components at MS):
      ADD/DEDUCT ($)
      DOLLARS
   4. Alternate No. GC-04;(Field area trenching and related work at MS):
      ADD/DEDUCT ($)
      DOLLARS

1.08 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.

1.09 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.

1.10 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 Owner's Consultant, for this Project.
   2. 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.
   3. 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.

1.11 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.

1.12 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.

1.13 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.

1.14 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.

1.15 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.

1.16 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.:	

1.17 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.

1.18 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:

1.19 ASBESTOS

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

1.20 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:

1.21 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.)

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:

1.22 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:	

1.23 CERTIFICATION UNDER EXECUTIVE ORDER NO.16

A. Executive Order No 16 provides that "all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia."

B. The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from award because of current business operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitations or even award in the case of some solicitations.

C. As defined in Executive Order No. 6, an "entity conducting business operations in Russia" means an institution or company, wherever located, conducting any commercial activity in Russia or transacting business with the Russian Government or with commercial entities headquartered in Russia or with their principal place of business in Russia in the form of contracting sales, purchasing, investment, or any business partnership.

D. Is Vendor an entity conducting business operations in Russia, as defined above? Please answer by checking one of the following.

_____1. No, Vendor does not conduct business operations in Russia with in the meaning of Executive Order No. 16.

_____2.a. Yes, Vendor conducts business operations in Russia with in the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion.)

_____2.b. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extent necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being provided of the relevant laws, regulations, etc.)

_____3. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No.16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided hereing is true to the best of their knowledge and belief.

Vendor Name:_____

(legal entity)

By:_____

(signature)

Name:_____

Title:_____

Date:_____

END OF SECTION 004010

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SECTION 004020
FORM OF PROPOSAL –MECHANICAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
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,_____

1. 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.
   1. Allowance Amount:
      $

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.
   1. Alternate No. MC-01;(Provide and installation of Chiller at ES):
      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.
   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:
   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 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.

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

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:

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:	

1.22 CERTIFICATION UNDER EXECUTIVE ORDER NO.16

A. Executive Order No 16 provides that "all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia."

B. The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from award because of current business operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitations or even award in the case of some solicitations.

C. As defined in Executive Order No. 6, an "entity conducting business operations in Russia" means an institution or company, wherever located, conducting any commercial activity in Russia or transacting business with the Russian Government or with commercial entities headquartered in Russia or with their principal place of business in Russia in the form of contracting sales, purchasing, investment, or any business partnership.

D. Is Vendor an entity conducting business operations in Russia, as defined above? Please answer by checking one of the following.

_____1. No, Vendor does not conduct business operations in Russia with in the meaning of Executive Order No. 16.

_____2.a. Yes, Vendor conducts business operations in Russia with in the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion.)

_____2.b. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extent necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being provided of the relevant laws, regulations, etc.)

_____3. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No.16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided hereing is true to the best of their knowledge and belief.

Vendor Name:_____

(legal entity)

By:_____

(signature)

Name:_____

Title:_____

Date:_____

END OF SECTION 004020

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SECTION 004030
FORM OF PROPOSAL – PLUMBING CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
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,_____

1. 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] (or Insert number) consecutive calendar days of this notice to proceed and fully complete the work [in (insert number) calendar days] [by, (insert date).] [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.
   1. Allowance Amount:

$	(Insert Amount)

1.06 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.

1.07 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.

1.08 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:
      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.

1.09 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.

1.10 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 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 of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
If Corporation – provide 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:

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:

1.20 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:	

1.21 CERTIFICATION UNDER EXECUTIVE ORDER NO.16

A. Executive Order No 16 provides that "all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia."

B. The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from award because of current business operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitations or even award in the case of some solicitations.

C. As defined in Executive Order No. 6, an "entity conducting business operations in Russia" means an institution or company, wherever located, conducting any commercial activity in Russia or transacting business with the Russian Government or with commercial entities headquartered in Russia or with their principal place of business in Russia in the form of contracting sales, purchasing, investment, or any business partnership.

D. Is Vendor an entity conducting business operations in Russia, as defined above? Please answer by checking one of the following.

_____1. No, Vendor does not conduct business operations in Russia with in the meaning of Executive Order No. 16.

_____2.a. Yes, Vendor conducts business operations in Russia with in the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion.)

_____2.b. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extent necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being provided of the relevant laws, regulations, etc.)

_____3. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No.16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided hereing is true to the best of their knowledge and belief.

Vendor Name:_____

(legal entity)

By:_____

(signature)

Name:_____

Title:_____

Date:_____

END OF SECTION 004030

SECTION 004040
FORM OF PROPOSAL – ELECTRICAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
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,_____

1. 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.

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:
      $

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.
   1. Alternate No. EC-01;(Electrical work related to Chiller install at ES):
      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.
   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:
   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 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.

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

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:

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:	

1.22 CERTIFICATION UNDER EXECUTIVE ORDER NO.16

A. Executive Order No 16 provides that "all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia."

B. The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from award because of current business operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitations or even award in the case of some solicitations.

C. As defined in Executive Order No. 6, an "entity conducting business operations in Russia" means an institution or company, wherever located, conducting any commercial activity in Russia or transacting business with the Russian Government or with commercial entities headquartered in Russia or with their principal place of business in Russia in the form of contracting sales, purchasing, investment, or any business partnership.

D. Is Vendor an entity conducting business operations in Russia, as defined above? Please answer by checking one of the following.

_____1. No, Vendor does not conduct business operations in Russia with in the meaning of Executive Order No. 16.

_____2.a. Yes, Vendor conducts business operations in Russia with in the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion.)

_____2.b. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extent necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being provided of the relevant laws, regulations, etc.)

_____3. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No.16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided hereing is true to the best of their knowledge and belief.

Vendor Name:_____

(legal entity)

By:_____

(signature)

Name:_____

Title:_____

Date:_____

END OF SECTION 004040

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SECTION 004500
QUALIFICATION STATEMENT

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Project Number: R23.00331.00
Owner's Name: Greenwood Lake Union Free School District
Name of Bidder:
FEIN (Federal Employer'

1.02 STATEMENT OF BIDDER'S QUALIFICATIONS

A. Contract For:
   1. GC, MC, EC, PC, RC,_____

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.

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:

B. The Bidder making the Bid for Construction of the above named Project, certifies that I or 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

A. 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 004500

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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 A132 – 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 005200

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DRAFT

AIA® Document A132™ – 2019

Standard Form of Agreement Between Owner and Contractor,
Construction Manager as Adviser Edition

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

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

« »« »
« »
« »
« »

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

« »« »
« »
« »
« »

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

« »
« »
« »

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

« »« »
« »
« »
« »

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

« »« »
« »
« »
« »

The Owner and Contractor agree as follows.

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

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 A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™–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. AIA Document A232™–2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[« »] The date of this Agreement.

[« »] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

« »

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

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

§ 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, 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.)

« »

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, 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

§ 3.4 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:

Portion 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 performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

[« »] 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

[« »] 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 Alternates

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

Item	Price

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

Item	Price	Conditions for Acceptance

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

Item	Price

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

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.3 Cost of the Work Plus Contractor's Fee without a Guaranteed Maximum Price

§ 4.3.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.3.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

« »

§ 4.3.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.3.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 4.3.5 Rental rates for Contractor-owned equipment shall not exceed « » percent (« » %) of the standard rental rate paid at the place of the Project.

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

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.3.7 The Contractor shall prepare and submit to the Construction Manager, within 14 days of executing this Agreement, a written Control Estimate for the Owner's review and approval. The Control Estimate shall include the items in Section B.1 of Exhibit B, Determination of the Cost of the Work.

§ 4.4 Cost of the Work Plus Contractor's Fee with a Guaranteed Maximum Price

§ 4.4.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

« »

§ 4.4.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.4.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 4.4.5 Rental rates for Contractor-owned equipment shall not exceed « » percent (« » %) of the standard rental rate paid at the place of the Project.

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

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.4.7 Guaranteed Maximum Price

§ 4.4.7.1 The Contract Sum is guaranteed by the Contractor not to exceed « » ($ « »), subject to additions and deductions by Change Order as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.

§ 4.4.7.2 Alternates

§ 4.4.7.2.1 Alternates, if any, included in the Guaranteed Maximum Price:

Item	Price

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

Item	Price	Conditions for Acceptance

§ 4.4.7.3 Allowances, if any, included in the Guaranteed Maximum Price:
(Identify each allowance.)

Item	Price

§ 4.4.7.4 Assumptions, if any, upon which the Guaranteed Maximum Price is based:
(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 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:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the « » day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment of the amount certified shall be made by the Owner not later than « » (« ») days after the Construction Manager receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

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

§ 5.1.4.2 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.

§ 5.1.4.3 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:

§ 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 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; and
- **.5** Retainage withheld pursuant to Section 5.1.7.

§ 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.

§ 5.1.5.4 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.

§ 5.1.5.5 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 interest of the Owner.

§ 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;

.2 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;

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and

.4 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;

.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 5.1.6.1 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.

§ 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.)

« »

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

« »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to 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.)

« »

§ 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

.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; and

.2 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 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.)

« » % « »

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232–2019, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

« »
« »
« »
« »

§ 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 binding dispute resolution shall be as follows:
(Check the appropriate box.)

[« »] Arbitration pursuant to Article 15 of AIA Document A232–2019.

[« »] Litigation in a court of competent jurisdiction.

[« »] Other: *(Specify)*

« »

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

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

§ 7.1.1.1 If the Contract is terminated for the Owner's 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.)

« »

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019.

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

§ 7.2.1 Termination

§ 7.2.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

§ 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;

.3 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 such 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 such 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

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, of this Agreement.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 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 by other provisions of the Contract Documents.

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

« »
« »
« »
« »
« »
« »

§ 8.3 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 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 E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 8.7 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.

§ 8.8 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

.2 AIA Document A132™–2019, Exhibit A, Insurance and Bonds Exhibit

.3 AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

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

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

[« »] AIA Document A132™–2019, Exhibit B, Determination of the Cost of the Work

[« »] AIA Document E235™–2019, Sustainable Projects Exhibit, Construction Manager as Adviser Edition, dated as indicated below:
(Insert the date of the E235-2019 incorporated into this Agreement.)

« »

[« »] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A232–2019 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

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

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
« »« »	« »« »
(Printed name and title)	*(Printed name and title)*

DRAFT AIA® Document A132™ – 2019 Exhibit A

Insurance and Bonds

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

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

« »
« »

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

« »« »
« »

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

« »« »
« »

TABLE OF ARTICLES

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A232™–2019, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

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

§ A.2.2 Liability Insurance

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

§ A.2.3 Required Property Insurance

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 Document A232™–2019, General Conditions of the Contract for Construction. Article 11 of A232™–2019 contains additional insurance provisions

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

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

Causes of Loss	Sub-Limit

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

Coverage	Sub-Limit

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

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

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

§ A.2.3.3 Insurance for Existing Structures
If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.
The Owner shall purchase and maintain the insurance selected and described below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

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

« »

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

« »

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

« »

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

« »

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

« »

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

« »

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

« »

§ A.2.5 Other Optional Insurance.

The Owner shall purchase and maintain the insurance selected below.

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

[« »] **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information.

(Indicate applicable limits of coverage or other conditions in the fill point below.)

« »

[« »] **§ A.2.5.2 Other Insurance**

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

Coverage	Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

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

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

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

§ A.3.2 Contractor's Required Insurance Coverage

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

(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

« »

§ A.3.2.2 Commercial General Liability

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

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

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

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

.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.

.3 Claims for bodily injury other than to employees of the insured.

.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.

.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.

.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.

.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.

.8 Claims related to roofing, if the Work involves roofing.

.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.

.10 Claims related to earth subsidence or movement, where the Work involves such hazards.

.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

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

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

§ A.3.2.5 Workers' Compensation at statutory limits.

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

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

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

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

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

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

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

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

« »

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

[« »] **§ A.3.3.2.1** If there is only one Contractor performing the Work on the Project, property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:

(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

« »

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

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

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

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

[« »] **§ A.3.3.2.6 Other Insurance**

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

Coverage	Limits

§ A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

(Specify type and penal sum of bonds.)

Type	Penal Sum ($0.00)
Payment Bond	« »
Performance Bond	

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

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

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

« »

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

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

END OF SECTION 006000

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FRONT END SUBMISSION LOG

GREENWOOD LAKE UFSD 2023 CIP : R23.00331.00

Contractor Name: _____

SUBMISSIONS

Submission	Date Submitted	Date 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.

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26 IBM Road
Poughkeepsie, NY 12601
CPLteam.com
800.274.9000 TEL

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REQUEST FOR INFORMATION

RFI #:

Date:

Greenwood Lake UFSD, 2023 CIP: CPL PROJ # R23.00331.00

Contractor Name:

To: Firm:

From:

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject:

Location:

Information Requested By:

MESSAGE:

Contractor's Name:

By: Date:

26 IBM Road
Poughkeepsie, NY 12601
cplteam.com
845.454.3411 TEL
845.473.1962 FAX

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SUBCONTRACTOR LIST

GREENWOOD LAKE UFSD 2023 CIP : R23.00331.00

To: **CPL**
26 IBM Road
Poughkeepsie, NY 12601

From:
(Contractor) _____

_____

Contractors
No.: _____

Contract 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
Name: _____ Contact: _____
Address: _____

Section
No.: _____ Section Title: _____
Firm
Name: _____ Contact: _____
Address: _____

Section
No.: _____ Section Title: _____
Firm
Name: _____ Contact: _____
Address: _____

Section
No.: _____ Section Title: _____
Firm
Name: _____ Contact: _____
Address: _____

Section
No.: _____ Section Title: _____

☐ Attachment(s)

Signed by: _____ Date: _____

Copies: ☐ **Owner** ☐ **Consultants** ☐ File
☐ ☐ ☐

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ALLOWANCE DISBURSEMENT AUTHORIZATION

Owner	
Architect/Engineer	
Contractor	
Field	
Other	
Other	

GREENWOOD LAKE UFSD 2023 CIP : R23.00331.00

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:

<**Owner's Name**>

Architect/Engineer:

CPL

Contractor:

<**Contractor's Name**>

Construction Manager:

The Palombo Group

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SUBSTITUTION REQUEST FORM

GREENWOOD LAKE UFSD 2023 CIP : R23.00331.00

To:
CPL
26 IBM Road
Poughkeepsie, NY 12601

From:
(Contractor) _____

Re: _____ Substitution Request Number: _____

Contract For: _____

Specification Title: _____ Description: _____

Section Number: _____ Page: _____ Part/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: Address: Phone:

History: ☐ New product ☐ 2-5 years old ☐ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

☐ Point-by-point comparative data attached

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect/Engineer: _____

Contractor: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work:

☐ No

☐ Yes, explain _____

Savings to Owner for accepting substitution: _____ ($ _____)

Proposed substitution changes Contract Time:

☐ Yes; explain ☐ No ☐ Yes [Add] [Deduct] _____ days

Supporting Data Attached: ☐ Drawings ☐ 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

- ☐ Substitution approved - Make submittals in accordance with Specification Section 013300.
- ☐ Substitution approved as noted - Make submittals in accordance with Specification Section 013300.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed By: _____ Date: _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ Architect/Engineer ☐ _____

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SUBMITTAL COVER

(Attach to each submittal)

#
Submittal No.

Architect Project Number: R23.00331.00
Contractors Number:
Project Name:
GREENWOOD LAKE UFSD
2023 CAPITAL IMPROVEMENT PROJECT
Date returned: _____

Contractor: _____
Address: _____
_____
_____
Phone / Fax: ( ) _____ ( ) _____

TYPE OF SUBMITTAL
(Check one)

☐ Product Data ☐ Color Selection ☐ O&M Manual
☐ Shop Drawings ☐ Sample ☐ Record Document
☐ Other

SUBSTITUTION ☐ **YES** ☐ **NO**
See General Conditions

PRODUCT IDENTIFICATION
Specification Section No.: _____
Contract Dwg. No.: _____
Product Name: _____
Part/Paragraph: _____
Detail Reference: _____
Manufacturer: _____

DATE OF SUBMITTAL: _____

RESUBMITTED: _____

NUMBER OF ATTACHED: _____

CONTRACTOR APPROVAL

Identify that this submittal has been reviewed and approved by the Contractor in accordance with the General Conditions

By: _____ Date: _____

DEVIATION FROM CONTRACT DOCUMENTS:

CONTRACTOR COMMENTS:

FOR USE BY CPL **SHOP DRAWING**

☐ No Exception Taken ☐ Revise & Resubmit
☐ Furnish as Corrected ☐ Rejected

Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe satisfactory manner.

CPL

Date:_____ By: _____

ARCHITECT'S COMMENTS:

Received Stamp

26 IBM Road
Poughkeepsie, NY 12601
CPLteam.com
845.454.3411 TEL

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INFORMATION BULLETIN

PROJECT:	Greenwood Lake UFSD 2023 CIP:	INFORMATION BULLETIN NO.:	
		DATE:	
OWNER:	Germantown CSD	CPL PROJECT NO.:	R23.00331.00
CONTRACTOR:		CONTRACT NO.:	
		CONTRACT DATE:	

DESCRIPTION:

ATTACHMENT(S):

ACTION

☐ 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 AUTHORIZATION:* 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	Contractor Date Required for Actions 2,3

☐ Owner ☐ Architect ☐ Structural ☐ Civil
☐ Contractor ☐ Field ☐ Mechanical/Electrical ☐ Other (Roofing)

SECTION 007200
A232 GENERAL CONDITIONS COVER (CMA)

PART 1 - GENERAL

1.01 SUMMARY

A. 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.
1.

END OF SECTION 007200

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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)

Greenwood Lake Union Free School District
2023 Capital Improvement Project
Middle School – 1247 Lakes Road, Monroe, New York 10950
Elementary School – 80 Waterstone Road, Greenwood Lake, New York 10925

THE CONSTRUCTION MANAGER:
(Name, legal status, and address)

Triton Construction Company
1279 Route 300, 1st Floor Newburgh, New York 12550

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

Greenwood Lake Union Free School District
PO Box 8 Greenwood Lake, New York 10925

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

CPL Architects, Engineers, Landscape Architect and Surveyor, D.P.C
d/b/a/ CPL
26 IBM Road
Poughkeepsie, New York 12601

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.

This document is intended to be used in conjunction with AIA Documents A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–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.

TABLE OF ARTICLES

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

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

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification 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.

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

§ 1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Contractors, and by the Owner's own forces and Separate Contractors.

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

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

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

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

§ 1.1.11 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. In 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 therefrom 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 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.

§ 1.2.1.1 Should any of the Contract Documents be inconsistent in themselves or with each other, the Contractor shall request written clarification from the Architect to resolve any such inconsistency.

§ 1.2.1.2 Execution of the Contract by the Contractor is a representation that the Contractor has carefully examined the Contract Documents (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.

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

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

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

§ 1.2.4 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 Severability. In the event that any term or provision, or part thereof, of this General Conditions and 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 General Conditions and/or the Contract Documents, and the remaining term(s) and provision(s) shall remain unaffected thereby.

§ 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 applicable to the Project Work. 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.

§ 1.6 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, Construction Manager, 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.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

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

(Paragraphs deleted)

ARTICLE 2 OWNER

§ 2.1 General

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

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

(Paragraphs deleted)

§ 2.3 Information and Services Required of the Owner

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

§ 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.

(Paragraph deleted)

§ 2.3.5 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.

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

§ 2.3.7 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2. The Contractor may purchase additional copies, at his own expense, at the cost of reproduction, postage, and handling.

§ 2.3.8 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, 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 satisfaction of the Owner, 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 benefit of the Contractor or any other person or entity.

§ 2.5 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 the Contract Documents or is otherwise in default of any term of the Contract Documents, and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without further notice required, without prejudice to other remedies the Owner may have, correct such default or neglect or deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the 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 exercise this right for its benefit or the benefit of the Contractor or any other person or entity.

§ 2.4

§ 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.

§ 2.6 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 and until six (6) years after its completion.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express

authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the 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 performed an investigation of the site, become thoroughly familiar with the nature and local conditions under which the Work is to be performed, and all matters which may in any way affect the Work or its performance and correlated personal observations and investigations with requirements of the Contract Documents. Submission of its bid to the Owner and subsequent execution of the Contract by the Contractor is a further representation that the Contractor has carefully examined the Contract Documents (with such review in Contractor's capacity as a contractor and not a design professional unless otherwise specifically provided in the Contract Documents) and that any errors, omissions, ambiguities, discrepancies or conflicts found in said Contract Documents have been brought to the attention of the Architect for clarification prior to the Contractor's submission of its bid. The Contractor further represents that as a result of its examinations and investigations, the Contractor thoroughly understands the Contract Documents and their intent and purpose and is familiar 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 that the Contractor will abide by same. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any other improvements located on the Project site. As required by this Contract, the Contractor shall be responsible for providing a safe place for the performance of the 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, if any, 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.

§ 3.2.1.2 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.

§ 3.2.1.3 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.

§ 3.2.1.4 The location of existing features shown on plans is intended for general information only. 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.

§ 3.2.1.5 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.

§ 3.2.1.6 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.

§ 3.2.1.7 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.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require

§ 3.2.2.1 The Contractor shall assume full responsibility for accuracy of measurements obtained at the site. 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 the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity 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 additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 and its subsections 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 and its subsections 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 Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested 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

§ 3.3.1 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, for coordinating all portions of the Work under the Contract, 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.

§ 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 all materials that will not conform with the Contract Documents when properly installed.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 The Contractor agrees to furnish sufficient staff with the requisite experience (in projects of comparable type, size and location) and competent Project construction team familiar with local conditions for the overall performance of the Work of the Project to meet the Project Schedule in the Specifications.

§ 3.4.3 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.

§ 3.4.3,1 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
- **.4** Shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

§ 3.4.3.1 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.

§ 3.4.3.2 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.

§ 3.4.4 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work and the Contractor shall maintain labor peace for the duration of the Project. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them. Any worker or other person involved in the performance of the Work who, in the reasonable opinion of the Architect, Construction Manager, or Owner, is incompetent or careless in the execution of the Work or otherwise unsatisfactory, shall be immediately removed upon the written request of the Owner.

§ 3.4.5 The Contractor shall check all materials and labor entering into the Work site and shall keep full detailed accounts thereof.

§ 3.4.5,1 Labor Harmony 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.

§ 3.4.5.2 The Contractor shall ensure that its Work continues uninterrupted during the pendency of a labor dispute.

§ 3.4.5.3 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 workers, foremen, and superintendents shall be employed at all times to permit the Work to be pursued with diligence until completion.

§ 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 of good quality and new. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from . Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, 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.

§ 3.6 Taxes

§ 3.6.1 Owner is exempt from payment of New York State, and Local Sales and Compensation Use Taxes on all supplies and materials incorporated into and becoming an integral component part of the structures, buildings, or 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. 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 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.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 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.

.1 The Contractor shall promptly deliver copies of such documents to the Owner.

.2 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. 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 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 knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, 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 Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, 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 for

adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in 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

§ 3.8.2 Unless otherwise provided in the Contract Documents:

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

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

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

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

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.1.1 The Contractor's superintendent shall not be removed from this Project until the Project punch list has been completed and the Project has been accepted by the Owner. Unless approved otherwise by the Owner in advance, the Contractor's superintendent shall be assigned solely to this Project and shall not perform any duties or superintendence on any other Project until completion of this Project.

§ 3.9.1.2 Should the superintendent leave the Contractor's employ, Contractor shall promptly designate a new qualified superintendent who is acceptable to the Owner, Construction Manager and Architect.

§ 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.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information, and the Construction Manager's use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. 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 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 Recovery Measures required by the Owner, unless they are incurred by the Contractor as directed in 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 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 Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project schedule.

§ 3.10.5 Submittals for all long lead time items shall be provided to the Construction Manager and Architect within ten (10) days of Board of Education approval of bid/contract.

§ 3.10.6 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

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the 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.

§ 3.12 Shop Drawings, Product Data, and Samples

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

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

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

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12. 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 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 Contractors.

§ 3.12.5.1 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.

§ 3.12.5.2 All submissions shall be sent to the Construction Manager and Architect by any method required by Construction Manager and Architect for such submission.

§ 3.12.6 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. The 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. The 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.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders 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.

.3 The Contractor shall 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 such 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.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.13.3 The Contractor shall be responsible for enforcing the Owner's security and access policies and procedures and the following rules of conduct for its personnel and those of its subcontractors, sub-subcontractors, and suppliers at the Project site.

.1 No smoking, vaping, or use of tobacco products on school grounds and within 100 feet of the boundary of any school building.
.2 No drinking of alcoholic beverages, ingesting of anything with THC, marijuana, CBD, CBG, etc. or use of controlled substances. Any use of marijuana in any form on school grounds is strictly prohibited.
.3 No working, or presence on site, under the influence of alcoholic beverages or controlled substances (including prescription medication).
.4 No use of indecent, discriminatory, or vulgar language or display of indecent, discriminatory or vulgar images, publications or terms.
.5 No use of radios or other entertainment devices.
.6 No horseplay or dangerous behavior.
.7 No firearms or other weapons.

Note to Specifier: Retain the following subparagraph for a school project.

.8 No communication with staff or students.

§ 3.13.4 The Contractor shall require its personnel and those of its subcontractors, sub-subcontractors and suppliers to wear visible photo-identification badges acceptable to the Owner, at all times for identification and security purposes.

§ 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.

(Paragraph deleted)

§ 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. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.1.1 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.

§ 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.

§ 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager, and Architect with full and free access to the Work in preparation and progress wherever located, including to inspect job materials, equipment, fabrication, facilities, and storage locations, at and away from the Project site.

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

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts. It is expressly understood that the Contractor indemnity and hold harmless obligations shall also include all expenses, including attorney's fees and expenses (as described in **§3.18.1**) incurred in security indemnity and hold harmless from Contractor.

§ 3.18.3 The obligations contained in this Section 3.18 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 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 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, and Architect. Consent shall not be unreasonably withheld.

§ 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, the 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 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 the Owner, and not the Contractor, the Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. 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 known deviations from the Contract Documents and defects and deficiencies observed in the Work.

§ 4.2.2.1 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect and Construction Manager 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 seek reimbursement pursuant to the procedures set forth in § 9.5.1.

§ 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. The 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 known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project schedule.

§ 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. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Contractor shall endeavor to communicate with the Owner through the Construction Manager and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents or the Architect's services or professional responsibilities. In no circumstances shall the Contractor communicate with Owner's staff other than those expressly authorized. The Owner may generally communicate with the Contractor through the Construction Manager, but there shall be no limitation on Owner's right to directly communicate 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 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.
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§ 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, and the Owner, about the rejection. 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.

§ 4.2.10 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 Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other 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.

§ 4.2.11 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.

§ 4.2.12 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.

§ 4.2.13 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.14 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.

§ 4.2.15 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.

§ 4.2.16 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.

§ 4.2.17 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.

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

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

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

§ 4.2.21 The Construction Manager will receive and review requests for information 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. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

§ 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.

.1 The Contractor's request for information shall be prepared and submitted in accordance with the General Requirements (Division 01 of the Specifications) on the form included therein or as otherwise approved in advance. The Architect will return requests for information that do not conform to requirements of the Contract Documents.

.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.

§ 4.2.23 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.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirments, 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.

The Contractor shall, prior to any work being performed, obtain and provide to the Owner and Construction Manager, a copy of the Subcontractor(s) Contractor Certificate of Registration, pursuant to New York State Department of Labor 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.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, that the Contractor, by these Contract Documents, assumes toward the Owner, 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, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

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

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract from and after the date on which the Owner determines to accept any subcontract agreement(s), provided that the Owner shall not be under any obligation to compensate the Subcontractor with respect to amounts that the Owner has already paid to the Contractor for such Subcontractor's work.

§ 5.4.2 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity.

(Paragraph deleted)

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other 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 Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other 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 defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other 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 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.

§ 6.2.4 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 Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner, Separate Contractors, and other 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 Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may, without prior written notice, clean up with its own employees or a 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 order for a minor change in the Work, issued by the Architect or Construction Manager, 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.

§ 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. A change in the Contract Sum or Contract Time shall be accomplished only by Change Order or Construction Change Directive. 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

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.

§ 7.2.1 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,

.4 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).

§ 7.2.2 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.

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

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

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the 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.

§ 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 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 in accordance with Section 7.1.4.

§ 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. 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 in Applications for Payment (pending final determination of the total cost of a 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 or any other disputed 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 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.

§ 7.3.11 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.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing and binding on the Contractor.

ARTICLE 8 TIME

§ 8.1 Definitions

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

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

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

§ 8.1.4 The 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.

§ 8.1.5 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)

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

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work. Contractor recognizes that the Project Schedule is of critical importance to the Owner.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

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

§ 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.

§ 8.3 Delays and Extensions of Time

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

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.

§ 8.3.2 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 with a copy sent to the Architect, if the Architect is not serving as 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 is not the Initial Decision Maker, in writing within the time periods prescribed in this Section, the Claim for an increase 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.

§ 8.3.3 Unless expressly provided otherwise in the Contract Documents, 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-Caused Delay"), 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 or within ten (10) days after the Contractor first recognizes the condition giving rise to such Owner-Caused Delay, whichever is later.

§ 8.3.3.1 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.

§ 8.3.3.2 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.

§ 8.3.3.3 All costs for expedited material procurement to meet the schedule shall be the responsibility of the Contractor.

§ 8.3.3.4 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.

§ 8.3.3.5 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.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

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

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. The Schedule of Values submitted by Contractor will be adjusted as required by Construction Manager or Architect as necessary for their approval. This schedule, once approved by the Construction Manager or Architect, 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 schedule of values. 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 work 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 funds 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 At 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 Schedule of Values, for completed portions of the Work in compliance with all requirements of Article 5 of the Agreement and elsewhere in the Contract Documents. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents. Each item listed in the Application for Payment shall have a separate amount for labor and a separate amount for material and other costs

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 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 such 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 Contractor 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 ninety-five (95%) of the amount due the Contractor on account of progress payments, minus monies withheld for any duly filed liens against said Contractor.

§ 9.3.1.5 At Substantial Completion, the Construction Manager and Architect may authorize remaining partial payments to be made in full, less twice the value of items remaining to be completed (punchlist) and an amount necessary to satisfy any outstanding claims, liens, or judgments.

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

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

§ 9.3.3.1 The Contractor further expressly undertakes to defend the Owner at Contractor's expense with reputable counsel approved by 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 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, 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.

§ 9.4.2.1 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 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 Project 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 the Architect's notice of withholding certification to the Contractors.

§ 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 data in the Application or Applications for Payment. The Construction Manager's

certification will constitute a representation 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.

§ 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 data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation 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 or Project 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 Contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- **.7** repeated 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 any other reasonable grounds for objection or withholding as provided in the agreement or as permitted by law.

§ 9.5.2 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 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.

§ 9.6 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.

§ 9.6.3 The Construction Manager may, on written request by the 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.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any

tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the 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 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 of any of the terms and conditions of the Contract Documents or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately 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.

(Paragraph deleted)

§ 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.**§ 9.8.2** 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.

§ 9.8.3 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.

.1 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.

2. 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

3. 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.

§ 9.8.4 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.

§ 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 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.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents. Such occupancy does not relieve the Contractor from completing the Work within the time period specified.

§ 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 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 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.

§ 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.

§ 9.10.1.2 The final payment of retained amount due the Contractor on account of the Contract shall not become due until the Contractor has furnished the Owner, through the Architect, completion documents as enumerated below, or as otherwise required in the Contract Documents.

.1 One (1) hard copy and one (1) electronic Record Set of Drawings showing actual construction of all portions of the Work and incorporating all changes and amendments thereto, as redlined against the 100% Construction Drawings.
.2 Guarantees and Warranties required by specific Sections of the Specifications.
.3 Release and Waiver of Claims, conditioned upon Final Payment, by the General Contractor, Subcontractors, Sub-subcontractors and material suppliers.
.4 All mechanical and electrical installation, operating and maintenance manuals called for under the Specifications.
.5 All test reports and certifications required under the mechanical and electrical specifications.
.6 All forms required to be completed by the Contractor by regulatory governmental agencies with two copies delivered to the Architect.
.7 Shop Drawing submittals in accordance with Article 3.
.8 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.
.9 Manufacturer's current detailed installation instructions for fire dampers, ceiling radiation dampers, smoke dampers, and duct smoke detectors as applicable to the Project.
.10 One (1) copy 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.

§ 9.10.2.1 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;
.2 the Project or that portion of the Project which encompasses the Work of the Contractor has been 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 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.

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

- **.1** liens, claims, security interests, or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents;
- **.3** terms of special warranties required by the Contract Documents; or
- **.4** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee.

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. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other contractors.

§ 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.

§ 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.

§ 10.2.3 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 Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 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 Contractor or any Subcontractor (or any employee or anyone for whom either of them is legally responsible) suffers injury or damage to person or property, notice of the injury or damage, whether or not insured, shall be given to the Owner and Construction Manager within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the Owner and Construction Manager to investigate the matter.

§ 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, personal injury, or property damage, giving full details and statements of 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 If 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.

§ 10.2.11 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.

§ 10.3 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 written notice regarding hazardous materials or substances not addressed in the Contract Documents, 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 or 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 and Subcontractors, their consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to reasonable attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

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

§ 10.3.5 To the fullest extent permitted by law, the Contractor shall indemnify the Owner from and against claims, damages, losses, costs and expenses, 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) 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 fault or negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located 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;

.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employee;

.4 Claims for damages insured by usual personal injury liability coverage;

.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

.6 Claims for damages because of bodily injury, death or a person or property damage arising out of ownership, maintenance or use of a motor vehicle.

.7 Claims for bodily injury or property damage arising out of completed operations; and

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

§ 11.1.2 The Insurance required by Section 11.1.1 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 claims-made 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.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Owner. 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) 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, and the Construction Manager and the Construction Manager's consultant, 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

§ 11.1.6.1 Workers' Compensation. 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

§ 11.1.6.2 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.

§ 11.1.6.2 Commercial General Liability Insurance is to be provided under the Insurance Service Office's (ISO)

most current form, on a project specific basis, with limits not less than the following required limits:

Each Occurrence:	$1,000,000
General Aggregate (per project):	$2,000,000
Products and Completed/Operations:	$2,000,000
Personal & Advertising Injury:	$1,000,000
Fire Damage (any one fire):	$ 100,000
Medical Expense (any one person):	$ 10,000

Such insurance shall include the following coverages:

(i) claims for damages because of bodily injury, occupational sickness or disease, or death;

(ii) claims for damages insured by usual personal injury liability coverage;

(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) owner's 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;

(ix) personal injury and advertising injury liability;

(x) extended bodily injury coverage with respect to bodily injury resulting from the use of reasonable force to protect persons or property;

(xi) medical payments coverage;

(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 others' identified herein as additional insured to be specifically evidenced as additional insureds via ISO Endorsements GC 2010 and CG 2037.

§11.1.6.3 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).

§11.1.6.4 Umbrella/Excess Policy, providing excess coverage in excess of the limits for the insurance coverages required by Sections 11.1.1.1, 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.

§ 11.1.6.5 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 Insureds and all

others identified by Owner as such, shall be included as Additional Insured son any EIL policy on a primary and non-contributing basis.

§ 11.1.7 All insurance shall be written on an occurrence basis. A copy of the additional insured endorsement shall be attached.

§ 11.1.8 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 the 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.

§ 11.1.9 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 from the payment of such deductible, which deductible shall in all circumstances remain the sole obligation and expense of the Contractor.

§ 11.1.10 Subcontractors are subject to the same insurance terms and conditions as stated herein, in Article 11, for Contractors and must submit proof of same to the Contractor, prior to start of any work. The Owner delegates its responsibility with respect to ensuring that each and every Subcontractor of Contractor complies with the insurance requirements and the Contractor is solely responsible if any Subcontractor does not comply with these requirements.

§ 11.1.10.1 The Contractor shall require all Subcontractors to carry the same insurance coverages 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. 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.

§ 11.1.11 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.

§ 11.1.12 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) Greenwood Lake Union Free School District;

(ii) Members of the Board of Education, officers and employees, of the Greenwood Lake Union Free School District;

(iii) The Construction Manager

(iv) The Architect ; and

Contractor shall also add any other entities and/or individuals as may be required by Owner as Additional Insured.

The certificate holder shall be Greenwood Lake Union Free School District unless Owner requires otherwise.

Contractor shall provide an Additional Insured endorsement that expressly names each of the above identified Additional Insureds (non-blanket) and shall ensure that the endorsement does not include language that requires an Additional Insured to have a written contract with the named insured for coverage to apply.

Additional insured status shall be provided by standard or other endorsements that extend coverage to the District for ongoing operations (CG 20 38) and products and completed operations (CG 20 37). The decision to accept an endorsement rest solely with the District. A completed copy of the endorsements must be attached to the Certificate of Insurance

§ 11.1.13 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.

§ 11.1.14 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).

§ 11.1.15 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.

§ 11.1.16 No act or omission of any insurance agent, broker, or insurance company representative shall relieve Contractor of any of its obligations under this Contract.

§ 11.1.17 Notwithstanding anything in Section 11.1 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.

§ 11.1.18 In the event the Contractor fails to obtain the required certificates of insurance from the Subcontractor and a claim is made or suffered, the Contractor shall indemnify, defend and hold harmless the Owner, its officers, employees and agents, 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.

§ 11.1.19 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.

§ 11.1.20 PERFORMANCE BOND AND PAYMENT BOND

§ 11.1.20.1 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:

.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 where the Project is located, 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.

.3 The Performance Bond and the Labor and Material Payment Bond shall each be in an amount equal to the 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.

.5 Every Bond under this Subparagraph 11.4.1 must display the Surety's Bond Number. A rider including the following provisions shall be attached to each Bond:

(i) 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.

(ii) The Surety agrees that it is obligated under the bonds to any successor, grantee, or assignee of the Owner.

.6 Bonds shall be written on AIA Document 312.

.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 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

§ 11.2.1 Liabilityn Insurance. The Owner shall purchase and maintain the Owner's usual liability insurance.

§ 11.2.2 Property Insurance. The Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in New York State, 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 11.2 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

(Paragraph deleted)

§ 11.2.2.1 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.

§ 11.2.2.2 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 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.

(Paragraphs deleted)

§ 11.4

(Paragraphs deleted)

Waivers of Subrogation

(Paragraphs deleted)

§ 11.4.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (5) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance obtained by the Owner in accordance with the Agreement or other property insurance applicable to the Project, except such rights as the Owner and the Contractor may have to the proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals 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 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. 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 11.3.1 shall be of no force or effect and no such waiver of subrogation shall be required of Owner.

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

§ 11.4.3 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 (5) 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.

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.

§ 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 year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established

underArticle 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 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 2.5. 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.

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

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

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

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner, 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.

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

§ 12.3 Acceptance of Nonconforming Work

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located excluding that jurisdiction's choice of law rules, 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 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 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. The Contractor shall not assign any monies due or to become due to it under the Contract without the prior written consent of the Owner.

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

§ 13.3 Written Notice

(Paragraphs deleted)

§ 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:

(i) If to Owner, addressed to:

Greenwood Lake Union Free School District

Greenwood Lake, NY 10
Attn: Ms. Sarah Hadden Superintendent of Schools and
Ms. Ann Lierow, Assistant Superintendent for Business

with a copy to Construction Manager:

Triton Construction, Inc.
1279 NY-300, 1st Floor
Newburgh, New York 12550
Att: Kevin Sawyer

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 an appropriate writing, written notice to the other parties.

§ 13.4 Rights and Remedies

§ 13.4.1 Except as expressly provided in the Contract Documents, duties and obligations imposed by the Contract Documents on the Contractor and rights and remedies available to the 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..

§ 13.4.2 No action or failure to act by the Owner, Construction Manager, 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.

§ 13.5 Tests and Inspections

§ 13.5.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the 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.

§ 13.5.2 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 13.4.1, 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 of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense.

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

§ 13.4.5 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 promptly and, where practicable, at the normal place of testing.

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

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the legal municipal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- **.3** Because the 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.

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

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons 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 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, 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 days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and 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. 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.

§ 14.4 Termination by the Owner for Convenience

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

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

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

§ 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 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 15.1. 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.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by the 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 Article 12, shall be initiated by notice to the Owner with a copy sent to the Construction Manager and Architect, Claims by the Contractor 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 the 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 Article 12, shall be initiated by notice to the Owner.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

(Paragraphs deleted)

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary. 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.

§ 15.1.6.2 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. The time for performance of this Contract, 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 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.

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

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

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

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

(Paragraphs deleted)

§ 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, My be subject to mediation if agred upon by both parties..

§ 15.3.2 If mediation is mutually agreed upon, the parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by a mutually agreed upon mediation service

§ 15.3.3 If mediation is mutually agreed upon, 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.

(Paragraphs deleted)

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 08:02:39 ET on 11/08/2024 under Order No. 3104239969 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A232™ – 2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

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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 prepared by the New York State Department of Labor for this project. The Prevailing Wage Case Number (PRC#) assigned to this project is **2023010677**. The Schedule can be viewed at the following web site: **https://apps.labor.ny.gov/wpp/publicViewProject.do?method=showIt&id=1555857**. Upon award of the Contract to the successful bidder, a hard copy of the Schedule will be provided.

B. The Contractor shall be responsible for completing one copy of the Notice of Contract Award **(Form PW-16)**. Upon completion of the form, the Contractor shall mail the form to the Architect. Architect will forward a copy to the New York State Department of Labor.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 007343

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SECTION 011000
SUMMARY

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Project information.
   2. Work covered by Contract Documents.
   3. Access to site.
   4. Work restrictions.
   5. Coordination with occupants.
   6. Work under separate contracts.
   7. Specification and drawing conventions.

B. Related Sections:
   1. Division 01 Section “Multiple Contract Summary” for work under separate contracts.
   2. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.02 PROJECT INFORMATION

A. Project Identification:Greenwood Lake UFSD - 2023 Capital Improvement Project
   1. Middel School SED # 44-21-11-02-0-001-027
   2. Elementary School SED # 44-21-11-02-0-002-016

B. Project Location:
   1. Greenwood Lake Middle School, 1247 Lakes Road, Monroe, New York10950
   2. Greenwood Lake Elementary School, 80 Waterstone Road, Greenwood Lake, New York 10925

C. Owner: Greenwood Lake Union Free School District, PO Box 8 Greenwood Lake, New York 10925
   1. Owner's Rep: Robert Porras, Director of Facilities, (845) 782-8678 x 51120
      a. Email: rporras@gwlufsd.org

D. Architect: CPL, 26 IBM Road**,**Poughkeepsie , New York12601
   1. Contact Person: Lauren Tarsio, AIA
      a. Email: LTarsio@cplteam.com
      b. Telephone Number: (518) 915-7456

E. Construction Manager: Triton Construction Company, 1279 Route 300 1st Floor Newburgh, New York 12550
   1. Contact Person: Kevin Sawyer
      a. Email: k-sawyer@tritonconstruction.net
      b. Telephone Number: (212) 388-5700

F. Submittal Web Site: The Architect requires the use of Newforma Info Exchange for delivery and return of submittals, shop drawings and requests for information. There are **no exceptions** to this requirement.

1.03 DEFINITIONS

A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.04 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and consists of the following:
   1. Bathroom renovations as noted at both the Middle School and Elementary School.
   2. Interior finishes and renovations as noted at both the Middle School and Elementary School.
   3. Exterior site work and improvements as noted at both the Middle School and Elementary School
   4. Elevator controls replacement at the Middle School
   5. Locker Room renovation at the Middle School

B. Type of Contract:
   1. Project will be constructed under coordinated, concurrent multiple contracts. See Division 01 Section "Multiple Contract Summary" for a description of work included under each of the multiple contracts and for the responsibilities of the Project coordinator.
   2. Before commencing Work, submit an updated copy of the Contractor's Construction Schedule showing the sequence, commencement and completion dates, (and move-out and -in dates of Owner's personnel) for all phases of Work.

1.05 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Driveways, Walkways and Entrances: Keep all driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.06 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.
   1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 7:00 p.m, Monday through Friday, except as otherwise indicated.
   1. School Vacations and Holidays: Work may occur at any times, as approved.
   2. Weekend Hours: Work may occur at any times, as approved.
   3. Hours for Utility Shutdowns: Only on weekends, holidays and school vacations as approved.
   4. Hours for Noisy Activity: For core drilling, powder-activated fasteners, and other disruptive activities, 3:30 p.m. to 11:00 p.m, or as otherwise approved.
   5. Special Events: The Owner will provide dates and times of special events that will restrict construction operations.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
   1. Notify Owner not less than two days in advance of proposed utility interruptions.
   2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
   1. Notify Owner not less than two days in advance of proposed disruptive operations.
   2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or grounds.

F. Contractors are not permitted to use any building toilet facilities.

1.07 COORDINATION WITH OCCUPANTS

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

B. **Owner Limited Occupancy** of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
   1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
   2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
   3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
   4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.08 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
   2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

3. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
4. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:

B. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
   1. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 011000

SECTION 011200
MULTIPLE CONTRACT SUMMARY

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.

B. Note the school district will have flooring at the MS and roofing at the ES & MS work occuring at the same time as this contract, coordination with all contractors will be required.

C. Specific requirements of each contract are also indicated in individual Specification Sections and on Drawings.

D. Related Sections include the following:
   1. Division 01 Section "Summary" for the Work covered by the Contract Documents, restrictions on use of the premises, Owner-occupancy requirements, and work restrictions.
   2. Division 01 Section "Project Management and Coordination" for general coordination requirements.
   3. Division 01 Section "Temporary Facilities and Controls" for specific requirements for temporary facilities and controls.

1.02 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.03 GENERAL REQUIREMENTS OF CONTRACTS

A. Extent of Contract: Unless the Agreement contains a more specific description of the Work, names and terminology on Drawings and in Specification Sections determine which contract includes a specific element of Project.
   1. Unless otherwise indicated, the Work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
   2. Site excavation, concrete slab, bedding, back filling and landscape finished shall be provided by the .
   3. Abandoning of the water tank in place shall be provided by the General Contractor.
   4. Providing and installation of the water tank shall be provided by the Plumbing contractor.
   5. Local custom and trade-union jurisdictional settlements do not control the scope of the Work of each contract. When a potential jurisdictional dispute or similar interruption of work is first identified or threatened, affected contractors shall negotiate a reasonable settlement to avoid or minimize interruption and delays.
   6. All contractors are responsible for the careful removal and reinstallation of ceiling where work must be installed above a ceiling not scheduled for removal.
   7. Trenches for the Work of each contract shall be provided by General Contractor.
   8. Cutting and Patching: Each contract shall perform its own cutting; patching shall be by the General Construction Contract.
   9. Through-penetration firestopping for the Work of each contract shall be provided by that contract for its own Work.
   10. Roof-mounted equipment curbs for the work of each contract shall be provided by that contract and installed by that contract and coordinated with the districts roofing contractor.

11. Project closeout requirements.
12. Each Contractor shall review the facility asbestos report to become familiar with any materials that may contain asbestos. If the contractor encounters materials that have not been tested for asbestos he shall cease work and contact the Project Coordinator. The Contractor will be held responsible for clean-up costs if they continue to remove materials that have not been tested for asbestos.
13. All contractors are required to submit a photo along with the name and address of each employee that will work on district property from at least 14 days prior to commencing work.
14. Cutting & patching of existing interior concrete slabs inclubing bedding and compaction for all require under ground utility work shall be by the General Construction Contract.

B. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the Work.

C. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Division 01 Section "Temporary Facilities and Controls," each contractor is responsible for the following:
1. Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, and costs and use charges associated with each facility.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Its own field office, complete with necessary furniture, utilities, and telephone service.
4. Its own storage and fabrication sheds.
5. Its own dust protection to control dust where dust partition are not scheduled or shown on the drawings but are necessary to protect the building from dust contamination.
6. Temporary enclosures for its own construction activities.
7. Staging and scaffolding for its own construction activities.
8. General hoisting facilities for its own construction activities, up to 2 tons.
9. Progress cleaning of its own areas on a daily basis.
10. Secure lockup of its own tools, materials, and equipment.
11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

D. Temporary ventilation: Each Contractor to control fumes from construction operations including interior painting and “off gassing” of new finish materials.

E. Each Contractor has been given the opportunity prior to bid to inspect the entire Project site for interferences to their Contract work and agrees to accept the site as it existins on the date of the bid opening.
1. It is the Owner's intention to continue to occupy the existing buildings and site for normal School operations during the Construction process. The Contractors all agree to:
a. Cooperate with the Owner's personnel in maintaining and facilitating access to the School buildings and its facilities by the School staff, Students, Owner's agents, service consultants and the public, throughout the construction process.

b. Keep driveways and entrances serving the occupied School buildings clear and available to the Owner, the Owner's employees, the public, and to emergency vehicles at all times. Don not obstruct access to, or use these areas for parking, staging of equipment or materials. All access through these existing areas must be coordinated in advance and in accordance with the Owner's usage and occupancy schedule.
c. Schedule construction operations so as to minimize and conflicts or interruptions to the daily school functions. Coordinate any necessary interruptions with the designated project representative
d. All existing Owner-occupied areas of buildings (not turned over to the Project Contractors) need to remain operational at all times. The contractors are responsible to maintain all systems, such as but not limited to egress, fire alarm, clocks, electric, public address system, gas service, heat, etc.

F. Each Prime Contractor shall:
1. Strive to maintain a safe environment for its employees, clients and vendors. The prime contractors' efforts for an effective response to the Novel Coronavirus (COVID-19) Pandemic will be guided by and in accordance with all applicable federal, state and local laws and guidelines issued by public health authorities such as the Centers for Disease Control and other governmental agencies.
2. Provide field-engineering services, in addition to those provided by the General Work Prime Contract, to install site utilities included in the applicable Prime Contract.
3. Coordinate construction schedule information in order to formulate one master schedule for the entire Project.
4. Provide reflective vests to be worn by all on-site personnel at all times. Parties that do not abide by this requirement will be escorted off the premises.
5. Provide erosion and Sediment Control and dewatering as it relates to any excavation associated with its own Prime Contract.
6. Provide Sanitary Hand Solution and Personal Protective Equipment for its own employees.
7. Provide access to all concealed systems as required for system maintenance and repair for items installed in their Prime Contract. This specifically talks to access panels needed for future maintenance by the district.
8. Provide and maintain material lifting equipment required for the competion of their Contract requirements, and complying with NYS Labor Laws, OSHA Regulations, and other Federal, State, and local laws.
9. Provide and maintain additional temporary stairs, ladders, ramps, scaffolding, and platforms required specifically for completion of work of their own Contract, and as further detailed in this section. All work needs to comply with the NYS Labor Laws, OSHA regulation, and other Federal, State, and local laws.
10. Provide Fire Prevention materials and equipment for fire protection related to the work of their own Prime Contract. Provide fire extinguishers, fire blankets, adn fire watch during all cutting and welding operations.
11. Provide and supplemental lighting required to install the work of its own Contract, beyond the minimum OSHA levels provided under the Electrical Work Prime Contract.
12. Provide any supplemental heat required to install the work of its own Contract, beyond the levels owed by the Mechanical Contractor.
13. Provide traffic control for deliveries, and equipment needed to perform the work of their own Prime Contract.

14. Provide protection of its own finished Work, after installation, until accepted by the Owner.
15. Provide fire caulking for any penetration related to the work for its own Prime Contract.
16. Provide any office and storage trailers reequired to complete the work of their own Prime Contract.

1.04 GENERAL CONSTRUCTION CONTRACT

A. Work in the General Construction Contract includes, but is not limited to, the following:
   1. Remaining work not identified as work under other contracts.
   2. Concrete walks, including earthwork
   3. Asphalt concrete paving.
   4. Asbestos Abatement.
   5. Selective demolition.
   6. Slabs-on-grade, including earthwork, subdrainage systems, and insulation.
   7. Exterior closure, including walls, windows and louvers.
   8. Interior construction, including ceilings.
   9. Interior finishes including flooring, and finish carpentry.
   10. Miscellaneous items, including painting of mechanical and electrical work.
   11. Professional cleaning upon substantial completion including window washing, vacuuming of carpeting and waxing of flooring in all work areas for all trades.

B. Temporary facilities and controls in the General Construction Contract include, but are not limited to, the following:
   1. Temporary facilities and controls that are not otherwise specifically assigned to the Mechanical Contract or Electrical Contract.
   2. Unpiped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies.
   3. Temporary enclosure for building exterior, except as indicated.
   4. Special or unusual hoisting requirements for construction activities, including hoisting loads in excess of 2 tons, hoisting material or equipment into spaces below grade, and hoisting requirements outside building enclosure.
   5. Temporary signs.
   6. General waste disposal facilities including dumpsters for the project duration.
   7. Temporary fire-protection equipment.
   8. Barricades, warning signs, and lights.
   9. Site enclosure fence.
   10. Security enclosure and lockup.
   11. Restoration of Owner's existing facilities used as temporary facilities.

C. Work in the General Construction Contract includes, but is not limited to, the work included in each of the following:
   1. Division 00 “Procurement and Contracting Requirements” as it pertains to Work of this Contract.
   2. Division 01 “General Requirements” as it pertains to Work of this Contract.
   3. Division 2 “Existing Conditions”.
   4. Division 3 “Concrete.”
   5. Division 4 “Masonry.”
   6. Division 5 “Metals.”
   7. Division 6 “Wood, Plastics, and Composites.”
   8. Division 7 “Thermal and Moisture Protection”.

9. Division 8 “Openings” except as indicated:
10. Division 9 “Finishes”
11. Division 10 "Specialties"
12. Division 14 "Conveying Equipment"

D. Work in the General Construction Contract includes, but is not limited to, the work included in each of the following Drawings.
1. All Prefix “T” Drawings
2. All Prefix “HZ” Drawings
3. All Prefix “A” Drawings
4. All Prefix “G” Drawings
5. All references to other drawings from drawings listed above.

1.05 MECHANICAL CONTRACT

A. Work of the HVAC Contract includes, but is not limited to, the following:
1. HVAC systems and equipment.
2. HVAC instrumentation and controls.
3. HVAC testing, adjusting, and balancing.
4. Building automation system.
5. Mechanical connections to equipment furnished by the HVAC Contract

B. Work in the Mechanical Contract includes, but is not limited to, the following:
1. Division 00 “Procurement and Contracting Requirements” as it pertains to Work of this Contract.
2. Division 01 “General Requirements” as it pertains to Work of this Contract.
3. Section 024119 “Selective Removals” for shutoff of utilities or removal of equipment and fixtures where indicated.
4. Section 078413 “Penetration Firestopping.”
5. Division 23 “Heating Ventilating and Air Conditioning”

C. Temporary facilities and controls in the Mechanical Contract include, but are not limited to, the following:
1. Temporary facilities and controls as required.

D. Work in the Mechanical Construction Contract includes, but is not limited to, the work included in each of the following Drawings.
1. **All Prefix “T” Drawings**
2. All Prefix “G” Drawings
3. All Prefix “H” Drawings
4. All references to other drawings.

1.06 PLUMBING CONTRACT

A. Work of the Plumbing Contract includes, but is not limited to, the following:
1. Plumbing fixtures.
2. Domestic water distribution.
3. Sanitary waste.
4. Plumbing connections to equipment furnished by the **Plumbing Contract.**

B. Temporary facilities and controls in the Plumbing Contract include, but are not limited to, the following:
1. Piped gas service.
2. Piped water service.

3. Plumbing connections to existing systems and temporary facilities and controls furnished by the **Plumbing Contract.**

C. Work in the Plumbing Contract includes, but is not limited to, the following:
1. Division 00 “Procurement and Contracting Requirements” as it pertains to Work of this Contract.
2. Division 01 “General Requirements” as it pertains to Work of this Contract.
3. Section 024119 “Selective Structure Demolition” for shutoff of utilities where indicated.
4. Section 078413 “Penetration Firestopping.”
5. Division 22 “Plumbing.”

D. Temporary facilities and controls in the Plumbing Contract include, but are not limited to, the following:
1. Piped sewerage and drainage.
2. Piped gas service.
3. Piped water service.
4. Plumbing connections to existing systems and temporary facilities and controls furnished by the **Plumbing Contract.**

E. Work in the Plumbing Construction Contract includes, but is not limited to, the work included in each of the following Drawings.
1. **All Prefix “T” Drawings**
2. **All Prefix “G” Drawings**
3. **All Prefix “P” Drawings**
4. All references to other drawings from drawings listed above.

1.07 ELECTRICAL CONTRACT

A. Work of the Electrical Contract includes, but is not limited to, the following:
1. Site electrical distribution.
2. Electrical service and distribution.
3. Interior lighting.
4. Electrical connections to equipment furnished by the Electrical, Mechanical, and General Construction Contract.

B. Work in the Electrical Contract includes, but is not limited to, the following:
1. Division 00 “Procurement and Contracting Requirements” as it pertains to Work of this Contract.
2. Division 01 “General Requirements” as it pertains to Work of this Contract.
3. Section 024119 “Selective Removals” for shutoff of utilities or removal of equipment and fixtures where indicated.
4. Section 078413 "Penetration Firestopping".
5. Division 26 “Electrical.”
6. Division 27 “Communications.”
7. Division 28 “Electronic Safety and Security.”

C. Temporary facilities and controls in the Electrical Contract include, but are not limited to, the following:
1. Electric power service and distribution.
2. Lighting, including site lighting.
3. Electrical connections to existing systems and temporary facilities and controls furnished by the Electrical Contract.

D. Work in the Electrical Construction Contract includes, but is not limited to, the work included in each of the following Drawings.
   1. **All Prefix "T" Drawings**
   2. **All Prefix "G" Drawings**
   3. All Prefix "E" Drawings
   4. All references to other drawings from drawings listed above.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 011200

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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.

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.

1.07 ADJUSTMENT OF ALLOWANCES (QUANTITY AND UNIT COST)

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
   1. Include installation costs in purchase amount indicated in the allowance.

B. Submit claims for increased costs because of a change in scope as described in the Contract Documents, whether for the quantity amount or Contractor's handling, labor, installation, overhead, and profit.
   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.
   2. 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.

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.

3.02 GENERAL CONSTRUCTION SCHEDULE OF ALLOWANCES

GC-1: Contingency Allowance: Include in the Base Bid an Allowance of $25,000.00 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

MC-1: Contingency Allowance: Include in the Base Bid an Allowance of $50,000.00 for use according to the Owners instructions."
1. Contractor overhead and profit is provided in the Base Bid.

3.04 ELECTRICAL CONSTRUCTION SCHEDULE OF ALLOWANCES

A. EC-1: Contingency Allowance: Include in the Base Bid an Allowance of $25,000.00 for use according to the Owners instructions."
   1. Contractor overhead and profit is provided in the Base Bid.

3.05 PLUMBING CONSTRUCTION SCHEDULE OF ALLOWANCES

A. PC-1: Contingency Allowance: Include in the Base Bid an Allowance of $15,000 for use according to Owners instructions.
   1. Contractor overhead and profit is provided in teh Base Bid.

END OF SECTION 012100

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: Fireproofing
      a. Description: Reconstruct existing/ missing fireproofing due to wall, ceiling or equipment demolition.
      b. Unit of Measurement: Square foot.
   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 per Code Rule 56.
      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 per Code Rule 56.
      b. Unit of Measurement: Linear foot.

END OF SECTION 012200

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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 -01: LVT flooring and resilient base in ES Lobby.
      a. Alternate: Install new LVT flooring and resilient base in ES lobby as indicated on drawings and as specified.
   2. Alternate No. GC-02: Not Used
   3. Alternate No. GC-03: Dover elevator controller & associated components at MS.
      a. Alternate: Remove existing DMC controller and provide new elevator controller and associated components in elevator car panel. See spec secion 142400 -Hydraulic Elevators, for further information.
   4. Alternate No. GC-04: Field area trenching and related work at MS.
      a. Alternate: 400 LF of stone trenching and related corrective work of wet field conditions in the outfield areas, Field Area Site Plan on MS/C200

B. MECHANICAL CONSTRUCTION
   1. Alternate No. MC -01: Provide and installation of Chiller at ES.
      a. Alternate: Provide and install chiller on ES roof as indicated on sheets ES/H202 & GEN/H900.

C. ELECTRICAL CONSTRUCTION
   1. Alternate No. EC -01:Electrical work related to Chiller install at ES.
      a. Alternate: Work related to the disconnect of existing chiller and connection of new chiller as indicated on Sheet ES/E100, ES/E200, and GEN/E900.

END OF SECTION 012300

SECTION 012500
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 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
   2. Division 01 Section “Submittals” for submittal procedures.
   3. 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 facsimile of 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.
      l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
      m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
      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 of acceptance or rejection of proposed substitution within ten 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 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)

END OF SECTION 012500

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.
   1. 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.
   7. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:
      a. Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
      b. Copies of current, independent third-party test data of salient product or system characteristics.
      c. Samples where applicable or when requested by Architect.
      d. Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. 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.
      e. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
      f. Research reports, where applicable, evidencing compliance with building code in effect for Project.
      g. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.
   8. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
   9. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.

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.

EQUIVALENT CERTIFICATION

Project Name: Greenwood Lake UFSD - 2023 Capital Improvement Project
Project Address: 1247 Lakes Road, Monroe, New York 10950 80 Waterstone Road. Greenwood Lake, New York 10925
Project No.:R23.00331.00

REVIEWED MATERIAL:

AIA A701-2018 Instructions to Bidders
AIA A201-2017 General Conditions of the Contract
Specification Section: 012519 - Equivalents
Specification Section: 012500 - Substitution Procedures
Specification Section: 016000 - Product Requirements

CHECK THE FOLLOWING THAT APPLIES:

	No equivalents are proposed.
	Proposed equivalents are attached with supporting data as per Section 012519.

ALL EQUIVALENTS ARE HEREBY PRESENTED TO ARCHITECT AND OWNER FOR APPROVAL. NO FUTURE EQUIVALENTS WILL BE CONSIDERED.

Contractor Signature:
Printed Name of Contractor:
Date:

Signature of Reviewer:
Printed Name of Reviewer:
Approved as Noted Date:

END OF SECTION 012519

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 MINOR CHANGES IN THE WORK

A. Architect will issue 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 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 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. Use available total float before requesting an extension of the Contract Time.

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 Architect.
   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 and activity relationship. Use available total float before requesting an extension of the Contract Time.

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.
   2. 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 will issue a Change Order for signatures of Owner and Contractor on the Information Bulletin bound in the Project Forms Section of Project Manual.

1.07 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on the Information Bulletin bound in the Project Forms Section of Project Manual.
   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)

END OF SECTION 012600

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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 procedural requirements governing the handling and processing of allowances.
   2. Division 01 Section "Unit Prices" for administrative requirements governing the use of unit prices.
   3. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   4. Division 01 Section "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.
   5. Division 01 Section "Submittal Procedures" for administrative 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 at earliest 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.
      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 one-hundredth 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 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 5 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 G732 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. Architect 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.

F. Provide copies of payroll records (including subcontractors) that are signed and notarized, documenting compliance with prevailing wage requirements.
1. Per New York State Workman’s Compensation Board copies of all payroll records for all out of state contractors shall be retained on the worksite for inspection is required by the New York State Dept. of Labor.

G. Transmittal: Submit four signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after 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:
1. List of Substitutions
2. Contractor or Notice to Proceed.
3. Performance and Payment bonds.
4. Liability, Auto, and Umbrella Insurance.
5. Worker Compensation certificates.
6. Proposed schedule of values for approval.
7. List of Subcontractors
8. Contractor's Safety Program
9. Contractor's construction schedule (preliminary if not final)
10. Submittal Schedule (preliminary if not final).

a. First Payment WILL NOT be processed without a Submittal Schedule.

11. Emergency Contacts List
12. List of Contractor's staff assignments.

J. Initial Application for Payment: Administrative actions and submittals that must coincide with submittal of first Application for Payment include the following:
   1. Approved Schedule of values.
   2. List of subcontractors.
   3. Contractors Safety Program.
   4. Contractor's construction schedule (preliminary if not final).
   5. Submittal schedule (preliminary if not final).
      a. First Payment WILL NOT be processed without a Submittal Schedule.
   6. Emergency Contacts List.
   7. Certified Payroll.
   8. Schedule of unit prices.
   9. List of Contractor's staff assignments.
   10. List of Contractor's principal consultants.
   11. Copies of building permits.
   12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
   13. Report of preconstruction conference.

K. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
   1. Administrative actions and submittals that shall precede or coincide with this application include:
      a. Occupancy permits and similar approvals
      b. List of incomplete Work, recognized as exceptions to Architect’s Certificate of Substantial Completion
      c. Record Drawings and Specifications
      d. Operations and Maintenance Manuals
      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
      l. 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.
13. Change of door locks to Owner's access.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 012900

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SECTION 013000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.
B. Electronic document submittal service.
C. Preconstruction meeting.
D. Site mobilization meeting.
E. Progress meetings.
F. Construction progress schedule.
G. Contractor's daily reports.
H. Progress photographs.
I. Coordination drawings.
J. Submittals for review, information, and project closeout.
K. Number of copies of submittals.
L. Requests for Interpretation (RFI) procedures.
M. Submittal procedures.

1.02 REFERENCE STANDARDS

A. AIA G716 - Request for Information; 2004.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 017000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
B. Make the following types of submittals to Architect:
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

1.04 PROJECT COORDINATOR

A. Project Coordinator: Construction Manager.
B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for _____ access, traffic, and parking facilities.
C. During construction, coordinate use of site and facilities through the Project Coordinator.

D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities. Responsibility for providing temporary utilities and construction facilities is identified in Section 011000 - DO NOT USE BSD SUMMARY.

F. Coordinate field engineering and layout work under instructions of the Project Coordinator.

G. Make the following types of submittals to Architect through the Project Coordinator:
   1. Requests for Interpretation.
   2. Requests for substitution.
   3. Progress schedules.
   4. Coordination drawings.
   5. Correction Punch List and Final Correction Punch List for Substantial Completion.
   6. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
   1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
   2. Contractor and Architect are required to use this service.
   3. It is Contractor's responsibility to submit documents in allowable format.
   4. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
   5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
   6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
   7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Submittal Service: The selected service is:

C. Training: One, one-hour, web-based training session will be arranged for all participants, with representatives of Architect and Contractor participating; further training is the responsibility of the user of the service.

D. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.02 PRECONSTRUCTION MEETING

A. Schedule meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
   5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   6. Scheduling.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 SITE MOBILIZATION MEETING

A. Project Coordinator will schedule meeting at the Project site prior to Contractor occupancy.

B. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.

C. Agenda:
   1. Use of premises by Owner and Contractor.
   2. Owner's requirements.
   3. Construction facilities and controls provided by Owner.
   4. Temporary utilities provided by Owner.
   5. Survey and building layout.
   6. Security and housekeeping procedures.
   7. Schedules.
   8. Application for payment procedures.
   9. Procedures for testing.
   10. Procedures for maintaining record documents.
   11. Requirements for start-up of equipment.
   12. Inspection and acceptance of equipment put into service during construction period.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.

B. Project Coordinator will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Maintenance of progress schedule.
   7. Corrective measures to regain projected schedules.
   8. Planned progress during succeeding work period.
   9. Maintenance of quality and work standards.
   10. Effect of proposed changes on progress schedule and coordination.
   11. Other business relating to work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.05 CONSTRUCTION PROGRESS SCHEDULE

A. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

B. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

C. Within 10 days after joint review, submit complete schedule.

D. Submit updated schedule with each Application for Payment.

3.06 PROGRESS PHOTOGRAPHS

A. Maintain one set of all photographs at project site for reference; same copies as submitted, identified as such.

B. Photography Type: Digital; electronic files.

C. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
   1. Delivery Medium: Via email.
   2. File Naming: Include project identification, date and time of view, and view identification.
   3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.

3.07 COORDINATION DRAWINGS

A. Provide information required by Project Coordinator for preparation of coordination drawings.

3.08 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:

1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
1. Prepare a separate RFI for each specific item.
    a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
    b. Do not forward requests which solely require internal coordination between subcontractors.
2. Prepare using software provided by the Electronic Document Submittal Service.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.

E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
1. Official Project name and number, and any additional required identifiers established in Contract Documents.
2. Owner's, Architect's, and Contractor's names.
3. Discrete and consecutive RFI number, and descriptive subject/title.
4. Issue date, and requested reply date.
5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.
2. Note dates of when each request is made, and when a response is received.
3. Highlight items requiring priority or expedited response.
4. Highlight items for which a timely response has not been received to date.
5. Identify and include improper or frivolous RFIs.

H. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
   1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
   1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.

3.09 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
   1. Coordinate with Contractor's construction schedule and schedule of values.
   2. Format schedule to allow tracking of status of submittals throughout duration of construction.
   3. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
   4. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.

3.10 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017800 - Closeout Submittals.

3.11 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.12 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 - Closeout Submittals:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.13 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.14 SUBMITTAL PROCEDURES

A. General Requirements:
   1. Use a separate transmittal for each item.
   2. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
   3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
   4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
   5. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
      a. Upload submittals in electronic form to Electronic Document Submittal Service website.
   6. Schedule submittals to expedite the Project, and coordinate submission of related items.
      a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
      b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
      c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's approval, allow an additional 30 days.
   7. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.

B. Product Data Procedures:
   1. Submit only information required by individual specification sections.
   2. Collect required information into a single submittal.
   3. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:
   1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
   2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

3.15 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

D. Architect's and consultants' actions on items submitted for review:
   1. Authorizing purchasing, fabrication, delivery, and installation:
      a. "Approved", or language with same legal meaning.
      b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
         1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
      c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
   2. Not Authorizing fabrication, delivery, and installation:

E. Architect's and consultants' actions on items submitted for information:
   1. Items for which no action was taken:
      a. "Received" - to notify the Contractor that the submittal has been received for record only.
   2. Items for which action was taken:
      a. "Reviewed" - no further action is required from Contractor.

END OF SECTION 013000

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. Requests for Information (RFIs).
   4. 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.
   6. Division 01 Section "General Commissioning Requirements" for coordinating the Work with Owner's commissioning authority.

1.02 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

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 00 6000 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, in temporary field office, on Project Web site, **and** by each temporary telephone. Keep list current at all times.

1.04 COORDINATION

A. 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.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
   1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. 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.

D. 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. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.05 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 field office, and by each temporary telephone. Keep list current at all times.

1.06 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.
   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.
   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 Forms: Form provided in specification section 00 6000 of the Project Manual.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect 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.
3. 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 in writing within ten (10) days of receipt of the RFI response.

E. 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.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect'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.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect 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.

1.07 ARCHITECTS WEBSITE

A. The contractor will use Newforma Info Exchange for Submittals, Shop Drawings and RFI’s Project Web site shall include the following functions:
1. Project directory.
2. Project correspondence.
3. Meeting minutes.
4. Contract modifications forms and logs.
5. RFI forms and logs.
6. Task and issue management.
7. Photo documentation.
8. Schedule and calendar management.
9. Submittals forms and logs.
10. Payment application forms.
11. Drawing and specification document hosting, viewing, and updating.
12. Online document collaboration.
13. Reminder and tracking functions.

14. Archiving functions.

1.08 PROJECT MEETINGS

A. General: 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.
   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 and Architect, within three days of the meeting.

B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than fifteen (15) days after execution of the Agreement.
   1. Conduct the conference to review responsibilities and personnel assignments.
   2. Attendees: Authorized representatives of Owner, 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:
      a. Tentative construction schedule.
      b. Critical work sequencing and long-lead items.
      c. Designation of key personnel and their duties.
      d. Lines of communications.
      e. Procedures for processing field decisions and Change Orders.
      f. Procedures for RFIs.
      g. Procedures for testing and inspecting.
      h. Procedures for processing Applications for Payment.
      i. Distribution of the Contract Documents.
      j. Submittal procedures using Newforma Info Exchange.
      k. Preparation of record documents
      l. Use of the premises and existing building.
      m. Work restrictions.
      n. Working hours.
      o. Owner's occupancy requirements and restrictions.
      p. Responsibility for temporary facilities and controls.
      q. Procedures for moisture and mold control.
      r. Procedures for disruptions and shutdowns.
      s. Construction waste management and recycling.
      t. Parking availability.
      u. Office, work, and storage areas.
      v. Equipment deliveries and priorities.
      w. First aid.
      x. Security.
      y. 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 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.
      l. 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: Architect will conduct progress meetings at regular intervals.
   1. Coordinate dates of meetings with preparation of payment requests.
   2. Attendees: In addition to representatives of Owner, Owner's Commisioning Authority and Architect, each 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 conclude 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) Quality and work standards.
        11) Status of correction of deficient items.
        12) Field observations.
        13) Status of RFIs.
        14) Status of proposal requests.
        15) Pending changes.
        16) Status of Change Orders.
        17) Documentation of information for payment requests.
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.

E. Coordination Meetings: Conduct project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner, and Architect, each 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 meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined 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.
b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor 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) Work hours.
    10) Hazards and risks.
    11) Progress cleaning.
    12) Quality and work standards.
    13) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

F. Project Closeout Meeting: Architect will conduct a Project closeout conference, at a time convenient to Owner and Architect, but no later than 60 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    a. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    b. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    c. Preparation of Contractor's punch list.
    d. Responsibility for removing temporary facilities and controls.
    e. Requirements for preparing operations and maintenance data.
    f. Requirements for the Submittal of written warranties.
    g. Requirements for demonstration and training.

h. Requirements for submission of record documents, record specifications and record submittals.
i. Owner's partial occupancy requirements.
j. Responsibility and schedule for final cleaning
k. Installation of Owner's furniture, fixtures, and equipment.
l. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
m. Responsibility and schedule for final cleaning.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

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. Material location reports.
   5. Field condition reports.
   6. Special reports.

B. Related Sections:
   1. Division 01 Section "Multiple Contract Summary" for preparing a combined Contractor's Construction Schedule.
   2. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
   3. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.02 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.03 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.

1.04 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 constraints, including phasing, work stages, area separations 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.

1.05 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 commencement of the Work **to date of** Substantial 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 so no activity is longer than 20 days, unless specifically allowed by Architect.

2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than (60) sixty 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) fifteen days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than (30) thirty days for punch list and final completion.

C. 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 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.
4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Mockups.
    e. Fabrication.
    f. Sample testing.
    g. Deliveries.
    h. Installation.
    i. Tests and inspections.
    j. Adjusting.
    k. Curing.
    l. Startup and placement into final use and operation.
5. 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. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
   1. See Division 01 "Payment Procedures" for cost reporting and payment procedures.

F. 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 RFI's.
   3. Rejected or unreturned submittals.
   4. Notations on returned submittals.

G. Recovery Schedule: When periodic update indicates the Work is (14) fourteen 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.

2.02 START-UP CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit start-up horizontal bar-chart-type construction schedule within (7) seven days of date established for approval.

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) ninety 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: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within (30) thirty days of date established for the Notice of Award. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
   1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

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. List of separate contractors at Project site.
   4. Approximate count of personnel at Project site.
   5. Equipment at Project site.

6. Material deliveries.
7. High and low temperatures and general weather conditions, including presence of rain or snow.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events (refer to special reports).
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Construction Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. 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 (1) one day 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 Owner, Architect, 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 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.
   1. **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 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
   5. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
   6. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
   7. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
   8. 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 0 06000 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. Architect will not furnish Contractor with digital drawings.
2. Architect makes no representation as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

1.04 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, 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 within 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 responsibility 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 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 00 6000 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. 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:

Example:

081416	001	PD	Flush Wood Door
Spec Section	Submittal No.	Submittal Abbrv	Specification Name

File to Read: 081416-001 PD - Flush Wood Doors

Re-submission to Read: 081416-001-R1-Flush Wood Doors

Submittal Abbr. required to be used in the file name on submittals are as follows:

CD	Coordination Drawings
CERT	Certifications
CLC	Calculations
DD	Design Data
EJ	Engineer's Judgement
LEED	LEED or PD/LEED
O&M	Operation and Maintenance Manuals
PD	Product Data
PHOTO	Photo
QD	Qualification Data
RPT	Report
SAMP	Sample
SCH	Schedule
SEL	Make a Selection
SD	Shop Drawing(s)
STDY	Study
TR	Test Results
WAR	Warranty

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.
   2. 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. (unless submittal based on Architect's digital data drawing files is otherwise permitted).
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 quality-control 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 full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect 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 sets of Samples. Architect will retain two 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 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 01 2900 "Payment Procedures."

F. Submit within the first 30 days after Contract Award
1. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 4329 "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.

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.

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.

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 quality-assurance 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, Commissioning Authority, 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 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 wind-force-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.

1.05 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.

1.06 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 experienced 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 experienced 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 experienced 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, 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.

1.07 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 24 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, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
   1. Notify Architect, Commissioning Authority, 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 quality-assurance 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.

1.08 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency / special inspector 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, 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 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 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.
   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.

3.10 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

SECTION 014529
ASBESTOS TESTING LABORATORY SERVICES (NYS)

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Air monitoring services for asbestos removal provided by the Owner.
   2. Security expenses incurred by the District when building is unoccupied.

B. Related Sections:
   1. Division 01 Section "Summary" for use of premises and Owner-occupancy requirements.
   2. Division 01 Section "Temporary Facilities and Controls" for general temporary construction and environmental-protection measures for demolition operations.
   3. Division 02 Section “Asbestos Abatement” for air monitoring required by OSHA and other monitoring requirements within work areas.

1.02 PERFORMANCE REQUIREMENTS

A. General: Provide air monitoring for the Owner to verify that the building areas beyond the asbestos abatement work areas and the exterior environment remain uncontaminated.
   1. Upon completion of abatement activities, verify that elevated airborne fiber count encountered during abatement operations have been reduced to an acceptable level.

B. Regulatory Requirements: Comply with the current and applicable portions of the following:
   1. New York State Regulations:
      a. 12NYCRR56, referred to as “Code Rule 56” of the NYS Codes, Rules and Regulations (Statutory Authority: New York State Labor Law Section 906).
         1) Exception: Variances obtained in accordance with Article 30 of the Labor Law.
      b. New York State School Asbestos Safety Act (SASA).
   2. Regulations and Requirements of Federal Agencies:
      a. Occupational Safety and Health Administration (OSHA).
      b. United States Environmental Protection Agency (EPA).
      c. 40 CFR Part 763 Subpart E (AHERA) Appendix A unless permitted otherwise by the N.Y. State Department of Labor, EPA, and the Owner's Representative.

1.03 SUBMITTALS

A. Proposed Materials and Equipment: List by brand name and model number including, but not necessarily limited to, the following:
   1. Sampling pumps.
   2. Sampling stands.
   3. Flow meters.
   4. Sample cassettes.
   5. Sample filters.
   6. Aggressive sampling equipment.
   7. Microscopes.

B. Qualification Data: For qualified testing laboratory, including the following:
   1. Current NYS Asbestos Contractor’s License.
   2. Certificate of the Environmental Laboratory Approval Program (ELAP).
   3. List of the names, addresses and telephone numbers of all laboratory technical personnel employed on the project.

4. Current State and Federal licenses and certifications, analyst qualifications, respirator fit tests and medical screenings for all personnel.
5. Lab CIH and field supervisor CIH's, ABIH and/or PIH's Certificate.

C. Sampling Plan: Proposed plan for sampling based on the air monitor's understanding of the project. The plan shall include:
1. Number and type of samples to be collected on each date.
2. Proposed methodologies for collection and analyzing samples.

D. References: Not less than three (3) names and telephone numbers from New York State Public School Districts (K-12) in which asbestos project consultation has been approved.

1.04 QUALITY ASSURANCE

A. Daily Recordkeeping:
1. For all records, each sheet shall include all necessary “who, what, when, how” data by minimally including project, work area, location, dates, times, type, person doing the work, applicable observations, and sample I.D. instruments used.
2. Field sheets shall be kept for each sample during collection. Field sheets shall additionally include start/stop times of pumps, sample I.D. number, air volumes, machine used, filters, calibration data, Owner's Representative sign-off, etc. For exterior samples, include temperature, wind speed and direction, and precipitation data.
3. A chain of custody form shall be initiated for each sample in the field. The form shall be kept with the sample and updated as the sample changes possession.
4. Samples will be logged in at the laboratory, and a separate lab sheet (or combined with field sheet) shall be kept, for all lab data, for each sample, equipment used, count, methodology, calculations and interpretations.
5. Daily field sheets, lab analysis and chain of custody sheets, for each work area set of samples, shall be kept together with a summary cover sheet indicating general data above, specific fiber counts for each sample, plus applicable calculations, status of blanks, and interpretations of "pass" or "failed". Phone notification data shall also be included. These shall all be stapled together at the upper left-hand corner. This shall comprise a "Daily Progress Report" for that work area.
6. This Recordkeeping format shall also apply to samples taken prior to commencement of work and for final air clearance.

B. Documentation:
1. Weekly Air Monitoring Results: At the beginning of each week (Monday) written summary results of the prior week’s air samples shall be submitted to the School District's Environmental Safety Office. Each work area shall have a summary of daily analysis including a listing of counts for each sample with locations indicated and interpretation results.
2. Close-out Documentation: Within two weeks from the completion of the project, the air monitoring contractor shall submit three (3) bound copies of a final report; one (1) copy to the Project Inspector, two (2) copies to the School District's Environmental Safety Office. The final reports shall be broken down by each work area including:
a. Project Executive Summary per work area including an overall project description, a summary "Daily Progress Reports", dates of non-compliance, reasons, actions taken by Asbestos Abatement Contractor to bring into compliance. Final air clearance interpretation.
b. "Daily Progress Reports” includes field logs, calculations, lab logs, counts, interpretations, chain of custody documents. All organized consecutively by days.

c. Final Clearance PCM Sample Results, counts, calculations, and interpretations.
d. Final Clearance TEM Sample Results, counts, calculations, and interpretations.
e. Floor plans for each work area identifying exact sample locations including separate drawings for pre-abatement, during abatement, and final clearance sampling.
f. Certified Industrial Hygienist Certification (Stamp).
g. Air sample pump and rotometer calibration records.
h. A copy of all start of work submittals required in the SUBMITTALS article of this Section.

C. Worker Protection:
1. The air-monitoring contractor shall supply all air-sampling technicians with the proper respiratory protection and training.
2. The air-sampling technicians shall enter and exit the work areas using the protocols established for personal decontamination for asbestos projects.

D. Supervision: Supervise and certify by a CIH or a Professional Industrial Hygienist (PIH) all air monitoring practices and procedures. The PIH's responsibilities shall include:
1. Review and become familiar with the asbestos project specifications.
2. Attend at a minimum the initial pre-abatement meeting.
3. Review and document that preliminary, concurrent, and final air sampling and pump calibration techniques conform to AHERA and New York State asbestos abatement regulations.
4. Visit the project site at a minimum of one time per week, accompanied by School District's Director of Environmental Safety, to document and insure proper sampling techniques, methods and equipment are being utilized and conform to AHERA and New York State requirements.
5. Review and certify (stamp) final reports.

1.05 COORDINATION

A. General: Coordinate the activities of the air-sampling technicians with the abatement contractor and Owner's Representative.

B. Collect air samples, 24 hours a day, seven days a week, as instructed by the Owner's Representative.
1. Present the field sheet to the Owner's Representative to be initialed and dated prior to leaving the site.
2. Unless otherwise instructed by the Owner's Representative, air sampling shall be performed during the abatement contractor's shift.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General: Provide all necessary and proper materials and equipment, canisters, filters, etc. to obtain and process air samples.

PART 3 EXECUTION

3.01 SAMPLES

A. Air sampling shall occur continuously during all shift hours of the contractors per Code Rule 56. Minimally this shall be assumed as 9 hours per day 7 days a week.

B. The air-sampling technician shall calibrate sampling pumps on site at least once before, once at the midpoint and once after the collection of samples, and record in the field sheets.

C. Where possible, sample locations shall be at least 3 feet from any wall or column and 2 feet above the floor. Sampler shall be supported by a stand.

D. For clearance sampling, the air sampling technician shall provide aggressive air sampling per Rule 56 and as follows:
   1. First direct the exhaust of a leaf blower against all walls, ceilings, floors, ledges, and other surfaces in the work area.
   2. 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.
   3. The fan shall be operated on low speed and pointed toward the ceiling.
   4. Sampling pumps shall be started after the fans are started and stopped before the fans are stopped.

3.02 ANALYSIS

A. Samples shall be logged on a permanently bound logbook at the laboratory. No whiteout will be used to make corrections.

B. All lab counts, data and analysis shall be recorded on a lab summary sheet for each sample.

C. When both TEM and PCM Clearance samples are collected, PCM samples shall be analyzed first. TEM samples will be analyzed only if PCM samples pass clearance criteria.
   1. If TEM samples are analyzed, they shall be analyzed one at a time until the number of asbestos structures counted total 350, or one more sample is found to have 140 asbestos structures. If, and only if, neither of these cases is found, then all TEM samples will be analyzed.

D. Analytical Methods: The following methods shall be used in analyzing filters used to collect air samples:
   1. Cellulose ester filters (PCM) shall be analyzed using NIOSH 7400. This analysis shall be carried out at a laboratory located off the job site.
   2. Polycarbonate filers (TEM) shall be analyzed using AHERA Counting Protocol analysis per EPA.

E. If blank samples analysis causes that batch of samples to be suspect so as to cause resampling that shall be done at no cost to the Owner.

3.03 INTERPRETATIONS

A. Daily monitoring sample results shall be daily compared to all requirement levels per Rule 56. If they exceed background or .01 fibers per C.C., Air Monitoring Contractor shall fail the daily sample. If all samples are satisfactory, the summary sheet shall so indicate.
   1. Final Clearance Monitoring: Satisfactory levels.

B. For Code Rule 56 PCM Analysis: The clearance air monitoring results shall be considered satisfactory when every sample demonstrates an airborne concentration of asbestos fibers of less than 0.01 fibers per cubic centimeter, or the background level, whichever is greater.

C. For AHERA TEM Analysis: Clearance shall be satisfactory per AHERA protocols including: If the mean average of all the inside samples have asbestos structure concentrations at or below 70 s/mm' and the average airborne asbestos concentrations inside the area is not higher than the average outside calculated by the "Z" Test. All analysis to be per AHERA requirements.

D. Passing of PCM/56 criteria shall satisfy that requirement. Further work by the Asbestos Abatement Contractor, daily monitoring, and clearance retesting need only be done to satisfy the failed TEM method. If PCM/56 sampling fails, TEM samples will be discarded unanalyzed and the clearance has failed. Recleaning and resampling is required for both the PCM and TEM.

3.04 NOTIFICATION

A. Results for pre-abatement and daily abatement sampling shall be reported to the Owner's Representative and the Asbestos Abatement Contractor within 48 hours with the exception that the few final daily sample results must be reported to the Owner's Representative within 24 hours of the clearance sampling. Results for clearance sampling and roofing work area samples shall be reported to the Owner's Representative and the Asbestos Abatement Contractor within 24 hours.

B. If any daily monitoring of clearance sampling fails, the Asbestos Abatement Contractor shall immediately notify the Owner's Representative and the applicable Asbestos Abatement Contractor. The Asbestos Abatement Contractor shall make note of possible reasons for failure, and what corrective actions the Asbestos Abatement Contractor undertakes.

C. All notifications shall occur first by telephone followed by written notices. Telephone notifications shall be recorded indicating who was notified, position, time, date, telephone number, etc. Telephone notification shall only be to acceptable people approved at the beginning of the project.

D. Final air clearance results shall be sent to the Commissioner of Labor per CR-56, minimally by certified mail with copies and certificate to the Owner's Representative.

3.05 SCHEDULE OF AIR SAMPLES

A. Before start of work, verify locations and number of samples, as well as methodology for approval. Submittal shall include pre-abatement, post-abatement and during-abatement phases. Comply with Part 56.
   1. Per the requirements of the New York State Education Department all Final Air Clearance Samples shall be (TEM) Transmission Electron Microscopy Methodology.

END OF SECTION 014529

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SECTION 015001
TEMPORARY FACILITIES & CONTROLS-MULTIPLE PRIME CONTRACTS

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection for Multiple Prime Contract projects..

B. Temporary utilities include, but are not limited to, the following:
   1. Water service and distribution.
   2. Temporary electric power and light.
   3. Temporary heat.
   4. Ventilation and Humidity Control
   5. Telephone service.
   6. Sanitary facilities, including drinking water.
   7. Storm and sanitary sewer.

C. Support facilities include, but are not limited to, the following:
   1. Field offices and storage containers.
   2. Temporary roads and paving.
   3. Dewatering facilities and drains.
   4. Temporary partitions and enclosures.
   5. Hoists and temporary elevator use.
   6. Temporary project identification sign and project signage.
   7. Waste disposal services and dumpsters.
   8. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities include, but are not limited to, the following:
   1. Temporary fire protection.
   2. Barricades, warning signs, and lights.
   3. Environmental protection.
   4. Tree and plant protection.
   5. Security enclosure and lockup.
   6. Temporary enclosures.
   7. Temporary partitions.
   8. Sidewalk Bridge for maintaining legal exits.
   9. Enclosure fence for the work site.
   10. Environmental Protection

E. Related Sections:
   1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.02 INFORMATIONAL SUBMITTALS

A. Temporary Utilities: Each prime contractor shall submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Within 15 days of the date established for submittal of the Contractor's Construction Schedule, each prime contractor shall submit a schedule indicating implementation and termination of each temporary utility for which the Contractor is responsible.

C. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

D. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent

E. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

F. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage, including delivery, handling, and storage provisions for materials subject to water absorption or water damage, discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water damaged Work.
   1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
   2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
   3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

G. Dust-Control and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust-control and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
   1. Locations of dust-control partitions at each phase of the work.
   2. HVAC system isolation schematic drawing.
   3. Location of proposed air filtration system discharge.
   4. Other dust-control measures.
   5. Waste management plan.

H. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.03 DEFINITIONS

A. Temporary Enclosure: As determined by Architect, temporary roofing is complete, insulated, all exterior wall openings are closed with temporary closures.

B. Permanent Enclosure: As determined by Architect, permanent roofing is complete, insulated, and weather tight; exterior walls are insulated and weather tight; and all openings are closed with permanent construction or substantial temporary closures.

C. Temporary Facilities: Construction, fixtures, fittings, and other built items required to accomplish the work but which are not incorporated into the finished work.

D. Temporary Utilities: A type of temporary facility, primary sources of electric power, water, natural gas supply, etc., obtained from public utilities, other main distribution systems, or temporary sources constructed for the project, but not including the fixtures and equipment served.

E. Temporary Services: Activities required during construction, which do not directly accomplish the work.

1.04 QUALITY ASSURANCE

A. Regulations: The contractor shall comply with industry standards and with applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
   1. Building code requirements.
   2. Health and safety regulations.
   3. Utility company regulations.
   4. Police, fire department and rescue squad rules.
   5. Environmental protection regulations.

B. Standards: The Contractor shall comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."

C. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with the normal application of trade regulations and union jurisdictions.

D. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.05 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
   1. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
   2. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
   3. Gas Service from Existing System: Gas Service from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

B. Other entities using temporary services and facilities include, but are not limited to, the following:
   1. Other nonprime contractors.
   2. The Owner's work forces.
   3. Occupants of the Project.
   4. The Architect.
   5. Testing agencies.
   6. Personnel of government agencies.

1.06 PROJECT CONDITIONS

A. Temporary Utilities: Each prime contractor shall prepare a schedule indicating dates for implementation and termination of each temporary utility for which the Contractor is responsible. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

C. Temporary Use of Permanent Facilities: If the Owner permits temporary use of the permanent facilities the Installer of each permanent service shall assume responsibility for its operation, maintenance, and protection during use as a construction facility prior to the Owner's acceptance, regardless of previously assigned responsibilities.

1.07 DIVISION OF RESPONSIBILITIES

A. General: These Specifications assign each prime contractor specific responsibilities for providing certain temporary facilities used by other prime contractors and other entities at the site. The Contractor for General Construction is responsible for providing temporary facilities and controls that are not normal construction activities of other prime contractors and are not specifically assigned otherwise by this specification.

B. EACH PRIME CONTRACTOR is responsible for the following:
   1. Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, as well as the costs and use charges associated with each facility.
   2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
   3. Its own field office complete with necessary furniture, utilities, and telephone service.
   4. Its own storage containers for tools and storage of materials not incorporated into the building construction.
   5. Dewatering for their own construction operations.
   6. Temporary heat, ventilation, humidity control, and enclosure of the building prior to “Permanent Enclosure” where these facilities are necessary for its construction activity to protect the work, but have not yet been completed by the responsible prime contractor.
      a. Temporary ventilation to control temperature and humidity is required by the Contractor responsible for installing the specified finish and equipment as these finishes may be damaged be excessive humidity or promote the growth of mold. The permanent HVAC system shall not be relied upon to provide the necessary ventilation or conditioning of the humidity in the building. Each Contractor is required to protect their work in place and provide the necessary ventilation and or humidity control.
   7. Temporary Generator if electrical power is not been installed to the site.
   8. Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
   9. Collection of its waste material and transporting to a dumpster.
   10. Secure lockup of its own tools, materials, and equipment.
   11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

C. The Contractor for **General Construction** is responsible for the following:
   1. Temporary water service
   2. Barricades, warning signs, and lights.
   3. General disposal of wastes and spoil from the site areas.
   4. Site Enclosure fence as indicated _____.
   5. Snow and ice removal from all site construction areas.
   6. Containerized tap dispenser drinking-water with paper cup supply
   7. Barricades, warning signs, and lights related to the building work
   8. Temporary safety railings and stairs.
   9. Temporary toilets, including disposable supplies.
   10. Temporary wash facilities, including disposable supplies.
   11. Temporary enclosure of the building's roof windows and doors. Prior to "Permanent Enclosure"
   12. Temporary Ventilation and Humidity Control: Provide temporary ventilation in areas of confined space. Provide Dehumidification units where required upon building enclosure to protect installed finishes and moisture sensitive building materials.
   13. Temporary partitions indicated on drawings or specifically called for in specifications, required for project phasing or necessary to perform the work.
   14. General disposal of wastes for all prime contracts from the new and renovated building areas including costs for dumpsters.
   15. Building exit bridges and fences.
   16. Security enclosure and lockup.
   17. Directional signage and safety signage.

D. The **Plumbing Contracto**r is responsible for the following:
   1. Piped temporary water service from 5" ft. outside the building to a point inside the building
   2. Temporary gas service to building heating units after temporary or permanent enclosure.
   3. Temporary piping for roof drains not permanently connected
   4. Temporary sewers and drainage from 5" ft. outside the building to a point inside the building

E. The **Mechanical/ HVAC Contractor** is responsible for the following:
   1. Temporary Heat after "Permanent Enclosure" where the permanent heating system is not ready for use or cannot be used.

F. The Electrical Contractor is responsible for the following:
   1. Temporary electric power service and branch distribution.
   2. Temporary generator. To keep portions of the building in service during power shutdowns or replacement of main services.
   3. Temporary lighting.
   4. Electric Power Service: With the exception of the project office trailers at the Site, use electric power from the Owner's existing system without metering and without payment of use charges.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Each prime contractor shall provide new materials. If acceptable to the Architect, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for use intended.

B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."
   1. For job-built sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
   2. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch- thick exterior plywood.

C. Gypsum Wallboard: Provide 5/8 type x gypsum wallboard on interior walls of temporary offices or temporary partitions.

D. Roofing Materials: Provide UL Class A standard-weight asphalt shingles or UL Class C mineral-surfaced roll roofing on roofs of job-built temporary offices, shops, and sheds.

E. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.

F. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

G. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.

H. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

I. Water: Provide potable water approved by local health authorities.

J. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized steel bases for supporting posts.

K. Open-Mesh Fencing: Provide 0.12-inch- thick, galvanized 2-inch chain link fabric fencing 6 feet high and galvanized steel pipe posts, 1-1/2 inches I.D. for line posts and 2-1/2 inches I.D. for corner posts.

2.02 EQUIPMENT

A. General: Each prime contractor shall provide new equipment. If acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide 3/4-inch heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating and ventilating units: Provide temporary heating and ventilating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
   1. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
      a. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
      b. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
      c. Retain MERV of 8 for LEED-NC or LEED-CI Credit EQ 3.1.
   2. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction and clean HVAC system as required in Division 01 Section "Closeout Procedures".
   3. Air Filtration Units: HEPA primary and secondary filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

G. Temporary Toilet Units: The General Contractor shall provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

H. Fire Extinguishers: Each prime contractor will provide hand-carried, portable, UL-rated; Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
   1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

2.03 TEMPORARY SUPPORT FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Temporary Field Offices: Each prime contractor shall provide its own prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

C. Architect's Representative, Owner, CM Field Office: General Construction Contractor will provide office trailer to accommodate needs of the owner’s construction administration personnel. Keep office clean and orderly. Furnish and equip offices as follows:
   1. Provide new condition lockable 12' x 64' field office trailer, equipped with electric heat and air conditioning for Owner, CM and Architect Representative's use from project start through project completion.
   2. Include all associated costs, including delivery, set up, rental, operation, maintenance, furnishing, heating and cooling equipment, telephones, including payment for service, stairs for access at all doors, removal, etc., through the specified duration.
   3. Locate at the Project Site.
   4. Provide furnishings as listed:
      a. Photo Copier

b. (4) Desk chairs with wheels.
c. Tabletops in each office, 3' x width of trailer with 2 file cabinets under each.
d. (2) Plan tables, 3'x8', for conference room.
e. (2) Plan racks for (15) sets of plans each.
f. (2) Conference table - 12' long.
g. (18) Folding chairs.
h. 30 lf. x 12" wide shelving.
i. Cordless telephones each with a dedicated phone line with Answering machine.
j. 4-drawer file cabinets with locks.
k. (1) Bottled Water cooler and cups with scheduled water deliver as required.
l. Worktable for copier and fax machine.
m. 5'-0" long desks with drawers.
n. (1) 4- 8 foot-square tack board.
o. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.]

D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
1. Store combustible materials apart from building.

2.04 TEMPORARY UTILITIES

A. Temporary Sewer Service: The Contract for General Construction work is responsible for temporary sewer service until the permanent services are installed.
1. This work includes but is not limited to excavation and backfill, holding tanks, freeze protection, disinfection and coordination with the sewer purveyor.]

B. Temporary Water Service: The Contract foGeneral Construction work is responsible for temporary water service to the building until the permanent services are installed.
1. This work includes but is not limited to excavation and backfill, tapping sleeves, temporary metering, freeze protection, disinfection and coordination with the water purveyor.

C. Temporary Gas Service: The Contract for Plumbing work is responsible for temporary gas service to the building until the permanent services are installed.
1. This work includes but is not limited to excavation and backfill, temporary metering, and coordination with the gas purveyor.

D. Temporary Electric Service: The Contract for Electric work is responsible for temporary electric service to the building until the permanent services are installed.
1. This work includes but is not limited to temporary utility poles, temporary metering, weather protected temporary panel with disconnect and coordination with the electric purveyor.

E. Telephone Service: Each contractor is responsible for his or her own telephone service.
1. Provide at least one telephone at each site with answering machine.
a. Display construction-related phone numbers at each phone.
1) Fire emergency number.
2) Rescue emergency number.
3) Physician.
4) Prime Contractors' home offices.
5) Owner's representative.
6) Architect's representative
2. Equip each project superintendent/ foremen with a cellular telephone. This person shall be able to receive emergency calls 24 hrs. a day, 7 days a week.

PART 3 EXECUTION

3.01 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Each prime contractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
   1. Arrange with the company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
   2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
   3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.

B. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

C. The contractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

D. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
   1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

E. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged.
   1. Filter out excessive amounts of soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
   2. Connect temporary sewers to the municipal system as directed by sewer department officials.
   3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

F. Sanitary Facilities: The General Contractor will provide temporary toilets for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
   1. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
   2. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.

G. Owners Toilets: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

H. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

I. Water Service: The **General Construction** Contractor will install water service and distribution piping of sizes and pressures adequate for construction to the building until permanent water service is in use.
   1. Install water service and distribution piping of sizes and pressures adequate for construction and hose bibs on site as to provide service to all areas of construction activities as directed by the Architect, as required throughout the construction period.
   2. Sterilization: Sterilize temporary water piping prior to use.

J. Drinking-Water Facilities: Each Contractor shall provide containerized, tap-dispenser, drinking-water units, including paper cup supply.

K. Temporary Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
   1. Connect temporary service to Owner's existing power source, as directed by Owner.

L. Temporary Electric Power Service: The Electrical Contractor will provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics at each building addition and maintain them during construction period. Include overload-protected disconnects, automatic ground-fault interrupters.
   1. Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
   2. Install electric power service underground, except where overhead service must be used.
   3. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 V, ac 20 ampere rating, and lighting circuits may be nonmetallic-sheathed cable where overhead and exposed for surveillance.
   4. The Electrical Contractor will provide temporary power in the areas of renovation where the existing receptacles have been removed and the proximity to power source exceeds 50’.
   5. The Electrical Contractor will provide temporary engine generator sufficient to meet the demands of the construction work in progress when power has been temporarily disconnected or is required to keep existing building in operation during main electrical service work.
   6. Temporary Lighting: The Electrical Contractor will install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
      a. When an overhead floor or roof deck has been installed, The Electrical Contractor will provide temporary lighting with local switching.
      b. Security lighting for building exteriors shall be continuously operational and maintained.
      c. Temporary lighting shall be maintained in accordance with OSHA standards for power and foot candle levels in all areas while workers occupy the space
      d. The Electrical Contractor will provide temporary lighting in the areas of renovation where the existing fixtures have been removed and the new lighting has not been installed

M. Temporary Heat: Each prime contractor will provide temporary heat required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize energy consumption. Direct fired propane or Kerosene salamanders will not be permitted.

N. Upon “Permanent Enclosure” of the building as determined by Article 1.3 the Mechanical/HVAC Contractor shall provide temporary heat until the permanent heating system can be utilized.
   1. Temporary Heat: Provide temporary heat in all existing areas that are under construc tion and/or have their permanent heat temporarily or permanently shut off for construction reasons.
   2. Provide temporary heat in all new construction areas as soon as each area of new construction is fully enclosed: walls, roofs, insulation, and either windows and doors or temporary windows and doors.
   3. Temporary heat provided shall be sufficient to maintain all areas of new, fully enclosed construction (and renovated areas of existing construction that, due to construction, are temporarily without permanent heat), including concealed ceiling or chase spaces, to a minimum 50 degrees F, 24 hours a day, in winter weather as cold as 15 degrees F outside.
   4. Temporary heat must not damage any materials, new or existing, within or without the Project limits, on school property, nor shall it cause noxious odors or fumes or some other nuisance.
   5. Temporary heat must be installed, operated, maintained, and dismantled in a safe, legal manner.
   6. Provide adequate ventilation as required by Codes and labor laws in all areas of Project limits as part of the work of this Section.

O. Heating Facilities: Except where the Owner authorizes use of the permanent system, the Mechanical/HVAC Contractor will provide vented, indirect fired, self-contained, LP-gas or fuel oil heaters with individual space thermostatic control.
   1. Use of direct-fired Kerosene-burning space heaters, open flame, or salamander-type heating units is prohibited.
   2. Protect all permanent equipment put into services from dust, dust infiltration and soiling by installing filtering media at each supply and return outlet. Filters shall be changed in all air handling equipment including unit vents prior to owner occupancy. Failure to provide the necessary protection to the equipment may result in the contractor to be charged to clean the equipment and associated ductwork.

P. Ventilation and Humidity Control: The General Contractor will provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
   1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.

Q. Temporary Telephones: Each prime contractor will provide temporary telephone service with answering machine or require Project Superintendents / Forman to carry cellular phones. The telephones shall be provided throughout the construction period for all personnel engaged in construction activities.

R. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
   1. Prior to commencing work, The Mechanical/ HVAC Contractor will isolate the HVAC system in area where work is to be performed in accordance with approved coordination drawings.
      a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
      b. The General Contractor will maintain negative air pressure within work area using HEPA-equipped air filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
   2. The General Contractor will maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust containment devices.
   3. Each Contractor will perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

3.03 SUPPORT FACILITIES INSTALLATION

A. Each prime contractor will locate field offices, storage trailers, sanitary facilities, and other temporary construction and support facilities for easy access.
   1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
   2. Refer to the phasing plans for locations of storage trailers

B. Storage trailers/ containers: Each prime contractor will install storage containers equipped to accommodate materials and equipment involved. Storage trailers are to be located at each site in the designated staging areas located on the phasing plans.

C. Temporary Roads and Parking areas: Unless otherwise noted on the drawings, the General Contractor will construct and maintain temporary roads and parking areas to support the indicated loading adequately and to withstand exposure to traffic during the construction period. Locate temporary roads, storage areas, as indicated on the Phasing Plans.
   1. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas in same location as permanent roads and paved areas. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
   2. Temporary Roads and Parking areas: Use granular materials that will support the intended loading and traffic and maintain the areas throughout the construction period.
   3. Install temporary paving to minimize the need to rework the installations and result in permanent roads and paved areas without damage or deterioration when occupied by the Owner.
   4. Extend temporary roads in and around the construction area as necessary to accommodate delivery and storage of materials, equipment usage, administration, and supervision.

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
   1. Protect existing site improvements to remain including curbs, pavement, and utilities.
   2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Temporary Parking: Parking at most sites is limited to the staging areas and the areas adjacent the new building. Parking on the street or in owners designated lots is prohibited.

F. Temporary Parking/Staging and Access Roads
   1. Construction parking will not be allowed adjacent to the construction site.
      a. See site plan for construction parking
   2. The General Contractor will provide access for suitable parking areas. Re-grade and re-seed store any areas disturbed by parking/ staging.
      a. Parking Areas: Includes contractors' employees and construction vehicle parking. Minimum of 6-inch reference Item. #304.3 course.
      b. Access Roads: Includes access roads for delivery through staging area to building work areas, and to equipment and storage areas and sheds. Minimum of 10-feet wide, 9-inch reference Item. #304.3 course.
      c. Temporary parking by construction personnel shall be allowed only in areas so designated. Owner does not have space for construction parking in existing parking lots or roadways and will subsequently have vehicles in violation of parking prohibitions towed from site and back-charged with all fees to the Contractor.
   3. Traffic Regulations:
      a. Access through Owner's entrances shall be limited
      b. Utilize only entrances/temporary roads as designated
      c. Maintain all site traffic regulations.

G. Dewatering Facilities and Drains: Each Contractor will comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
   1. The General Contractor will dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
   2. The GeneralContractor will remove snow and ice as required to minimize accumulations.

H. Collection and Disposal of Waste: Each prime contractor will collect waste from their construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. The owner will enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly.

I. The General Construction Contractor will provide waste-collection containers in sizes adequate to handle waste from construction operations. The General Construction Contractor will provide dumpsters at the site for use by all other prime and subcontracts.
   1. Exceptions:
      a. Civil/Site Contractor
      b. Asbestos Contractor
      c. Roofing Contractor
   2. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.

J. Stairs: General Construction Contractor will provide temporary stairs in areas of new construction until permanent stairs are available. Provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

K. Existing Stair Usage: Use of Owner's existing stairs will be permitted, as long as stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If, despite such protection, stairs become damaged, restore damaged areas so no evidence remains of correction work.

L. Temporary Lifts and Hoists: Each prime contractor will provide facilities for hoisting materials.

M. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
1. Do not load elevators beyond their rated weight capacity.
2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect.

B. Protection of Existing Facilities: Each contractor will protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

C. Environmental Protection: Each contractor will provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.. Avoid using tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.
1. Comply with work restrictions specified in Division 01 Section "Summary."

D. Temporary Erosion and Sedimentation Control: The Electrical Contractor will provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to authorities having jurisdiction .
1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from the project site during the course of the project.
4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

E. Stormwater Control: The General and Electrical Contractor will comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

F. Temporary Site Lighting: The Electrical Contractor Install exterior yard and sign lights so signs are visible when Work is being performed.

G. Tree and Plant Protection: The Electrical Contractor will install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

H. Enclosure Fence: The General Construction Contractor when excavation begins will install an enclosure fence with lockable entrance gates. Install in a manner that will prevent the public and animals from easily entering the site, except by the entrance gates.
   1. Provide open-mesh, 6' high chain link fence with posts.
   2. Extent of Fence:
      a. As indicated on Drawings
   3. Provide min. 2 double swing access gates and man gates. Each gate is to have a chain and padlock.
   4. Provide (2) keys for each lock to the District Representative .
   5. Remove fence upon completion of all exterior activities or sooner if directed by District Representative

I. Pest Control: The General Contractor shall engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.

J. Barricades, Warning Signs, and Lights: The General Contractor will comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.

K. Project Identification and Temporary Signs : The General Contractor will prepare signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.
   1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated.
   2. Prepare temporary signs to provide directional information to construction personnel and visitors.
   3. Construct signs of exterior-type Grade B-B high-density concrete form overlay plywood. Support on posts or framing of preservative-treated wood or steel.
      a. Size: 4-feet by 8-feet by 3/4-inch thick.
   4. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.
   5. See sample sign following this section.

L. Temporary Signs: The General Contractor will prepare signs to provide directional information to construction personnel and visitors for each site. Unauthorized signs are not permitted.
   1. For construction traffic control/flow at entrances/exits, as designated by the Owner.
   2. For warning signs as required
   3. Per OSHA standards as necessary
   4. For trailer identification
   5. For "No Smoking" safe work site at multiple locations.

M. Temporary Egress: The General Contractor will maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

N. Covered Walkway: Where required during the progress of the work the General Construction Contractor will erect a structurally adequate, protective covered walkway for safe passage required at legal exits. Coordinate with entrance doors, access to construction areas, excavations and obstructions. Comply with regulations of authorities having jurisdiction.
   1. Construct covered walkways using scaffold or shoring framing. Provide wood plank overhead decking, protective plywood enclosure walls, handrails, barricades, warning signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage. Extend the back wall beyond the structure to complete the enclosure fence. Paint and maintain in a manner acceptable to the Owner and the Architect.
   2. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
   3. Paint and maintain appearance of walkway for duration of the Work.

O. Temporary Enclosures: Each prime contractor will provide temporary enclosure for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
   1. Where heat is needed and the “Permanent Enclosure” is not complete, the contractor responsible for the work will provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
   2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 sq. ft. or less with plywood or similar materials.
   3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
   4. Where temporary wood or plywood enclosure exceeds 100 sq. ft. in area, use UL labeled, fire-retardant-treated material for framing and main sheathing.
   5. Temporary closures for specific openings for the contractor to perform their work are the responsibility of Contractor creating the opening and shall be installed to protect building from exterior elements.

P. Temporary Partitions: General Construction Contractor will provide floor-to-ceiling dustproof partitions to limit dust, dirt migration, fumes and noise to separate areas occupied by the Owner.
   1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
   2. Construct dustproof partitions with 2 layers of 3-mil polyethylene sheet on each side. Cover floor with 2 layers of 3-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
      a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.
   3. Insulate partitions to provide noise protection to occupied areas.
   4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
   5. Protect air-handling equipment.
   6. Weather strip openings.
   7. Provide walk-off mats at each entrance through temporary partition.

Q. Temporary Fire Protection: Each prime contractor until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10, "Standard for Portable Fire Extinguishers," and NFPA 241, "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
   1. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
   2. Prohibit smoking in construction areas.
   3. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
   4. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
   5. Store combustible materials in containers in fire-safe locations
   6. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

R. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire-protection system, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

S. Security Enclosure and Lockup: The General Construction Contractor will install substantial temporary enclosure of partially completed areas of construction. Provide temporary doors and locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
   1. Storage: Each prime contractor is responsible at for their materials and equipment to be stored, and are of value or attractive for theft, provide a secure lockup. Coordinate work in connection with the installation and control release of material to minimize the opportunity for theft and vandalism.

3.05 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Each Contractor is to avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
   1. Protect porous materials from water damage.
   2. Protect stored and installed material from flowing or standing water.
   3. Keep porous and organic materials from coming into prolonged contact with concrete.
   4. Remove standing water from decks.
   5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Phase: After installation of weather barriers but before Permanent Enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
   1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
   2. Keep interior spaces reasonably clean and protected from water damage.
   3. Periodically collect and remove waste containing cellulose or other organic matter.
   4. Discard or replace water-damaged material.

5. Do not install material that is wet.
6. Discard, replace or clean stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

D. Controlled Construction Phase of Construction: After completing and sealing of the permanent building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use permanent HVAC system to control humidity.
3. HVAC/Mechanical Contractor is to provide temporary dehumidification and ventilation until the building systems are operational and the spaces are substantially completed.
4. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
   a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
   b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record daily readings over a forty-eight hour period. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
   c. Remove materials that can not be completely restored to their manufactured moisture level in 48 hours.

3.06 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities and good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

E. Termination and Removal: Unless the Architect requests that it be maintained longer each prime contractor will remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are the property of each prime contractor.

2. The **[General][Civil / Site]** Contractor will remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances, as required by the governing authority. The General Construction Contractor will remove any temporary paving that was noted as General Contractor on the phasing drawings or installed to execute the work.

F. At Substantial Completion: Each prime contractor shall repair, renovate, and clean permanent facilities related to their contract used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015001

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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 012500 "Substitution Procedures" for requests for substitutions.
   3. Section 012519 “Equivalents” for equivalent products submitted prior to Contract award.
   4. 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: 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 ten (10) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
      a. Form of Approval: As specified in Section 01 3300 "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 01 3300 "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 01 2500 "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

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 01 2519 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. Cutting and Patching Plan: Submit plan describing procedures, such as exterior envelope modifications or removal of structural elements, at least ten (10) 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.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.04 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. 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. Electrical wiring systems.
      j. 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.
   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.

B. 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. Submit to Architect for approval per Section 012500 "Substitution Procedures".

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 owner 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 architect and 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 01 3100 "Project Management and Coordination."

3.03 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.

3.04 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 01 1000 "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 prevent 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. Cutting and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. 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.
   5. 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. 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.

3.05 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.
   3. 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 01 5001 "Temporary Facilities and Controls-Multiple Prime Contracts"

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.

3.06 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 01 4000 "Quality Requirements."

3.07 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 017300

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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. 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.

1.04 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. Complete startup testing of systems.
6. Touch up paint and otherwise repair and restore damaged finishes.
7. 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 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.

1.05 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 01 2900 "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. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirments.
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/or 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.

1.06 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.
   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 Contruction 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.

1.07 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 fifteen (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.
   2. 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.

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 anti-pollution regulations.

B. Cleaning: Employ experienced workers or 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.
l. 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. Construction Waste Disposal: Comply with waste disposal requirements in Section 015001 "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.
    1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
    2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show eidence of repair or restoration.
        a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
    3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in flourescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

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 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:
   1. 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.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect 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 will return copy with comments.
   1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect'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, post-type 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 cross-reference 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

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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 "Execution" for final property survey.
   2. Division 01 "Closeout Procedures" for general closeout procedures.
   3. Division 01 "Operation and Maintenance Data" for operation and maintenance manual requirements.
   4. 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.
      b. Final Submittal:
         1) Submit PDF electronic files of scanned record prints and two (2) sets 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.
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. Locations and depths of underground utilities.
d. Revisions to routing of piping and conduits.
e. Revisions to electrical circuitry.
f. Actual equipment locations.
g. Duct size and routing.
h. Locations of concealed internal utilities.
i. Changes made by Change Order or Constructive Change Directive.
j. Changes made following Architect's written orders.
k. Details not on the original Contract Drawings.
l. Field records for variable and concealed conditions.
m. 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.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record drawings with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file with comment function enabled.
2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
3. Refer instances of uncertainty to Architect for resolution.
4. 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.
b. Architect will provide data file layer information. Record markups in separate layers.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Submit record Drawings as annotated PDF electronic file.

3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS".
   d. Name of Architect.
   e. Name of Contractor.

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.

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 and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file.
   1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

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.

B. Format: Submit miscellaneous record submittals as PDF electronic file.
   1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

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 reference during normal working hours.

END OF SECTION 017839

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 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.

4. 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.
   h. Normal shutdown instructions.
   i. Operating procedures for emergencies.
   j. Operating procedures for system, subsystem, or equipment failure.
   k. Seasonal and weekend operating instructions.
   l. 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 format file type acceptable to Owner, 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 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

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SECTION 024119
SELECTIVE REMOVAL
SELECTIVE STRUCTURE DEMOLITION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This section Includes:
   1. Demolition and removal of selected portions of building or structure.
   2. Salvage of existing items to be reused or recycled.

B. Related Sections include the following:
   1. Division 01 Section "Summary" for use of premises and Owner-occupancy requirements.
   2. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
   3. Division 01 Section "Execution" for cutting and patching procedures.

1.03 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.04 MATERIALS OWNERSHIP

A. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during selective demolition remain the property of Owner.
   1. Carefully remove and salvage in a manner to prevent damage and promptly return to Owner.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and for noise control.

C. Schedule of Selective Removal Activities: Indicate the following:
   1. Detailed sequence of selective removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Use of elevator and stairs.

5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

E. Pre-removal Photographs or Video: Submit before Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.06 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.07 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdication.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

1.08 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective removal area. Conduct selective removal so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Present in buildings and structures to be selectively removed. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
   1. Hazardous material remediation is specified elsewhere in the Contract Documents.
   2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective removal operations.
   1. Maintain fire-protection facilities in service during selective removal operations.

G. Although care has been taken to ensure their accuracy, the locations shown for existing partitions, equipment, and structures indicated to be removed, nor their quantity, are guaranteed. It is the Contractor’s responsibility to verify these conditions in the field during the bidding process before commencing work. No claims for extra payment due to incorrect locations, dimensions or quantities of items will be considered by the Owner.

1.09 COORDINATION

A. Arrange selective removal schedule so as not to interfere with Owner's operations.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 EXECUTION

3.01 EXAMINATION

A. Disconnect and cap utilities before starting selective removal operations.

B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building removal operations.
   1. Perform surveys as the Work progresses to detect hazards resulting from selective removal activities.

C. Verify that hazardous materials have been remediated before proceeding with selective removal operations.

3.02 PREPARATION

A. Refrigerant: Before starting removal, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.03 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively removed.
   1. Arrange to shut off utilities with utility companies.
   2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective removal and that maintain continuity of services/systems to other parts of building.
   3. Disconnect and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
      a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
      b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
      c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
      d. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
      e. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
      f. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.04 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   1. Provide protection to ensure safe passage of people around selective removal area and to and from occupied portions of building.
   2. Provide temporary weather protection, during interval between selective removal of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
   3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective removal operations.
   4. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 5000 "Temporary Facilities and Controls."

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being removed.
   1. Strengthen or add new supports when required during progress of selective removal.

C. Remove temporary barricades and protections where hazards no longer exist.

3.05 SELECTIVE REMOVAL, GENERAL

A. General: Remove existing construction to the extent indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Proceed with selective removal systematically, from higher to lower level. Complete selective removal operations above each floor or tier before disturbing supporting members on the next lower level.
   2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
   3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
   4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
   5. Maintain fire watch during and for at least 2 hours after flame-cutting operations.
   6. Maintain adequate ventilation when using cutting torches.
   7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
   8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
   9. Locate selective removal equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
   10. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective removal and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective removal.

3.06 SELECTIVE REMOVAL PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

C. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.

D. Roofing: Remove no more existing roofing than what can be covered in one day by new temporary roofing and so that building interior remains watertight and weathertight.
1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

3.07 DISPOSAL OF REMOVED MATERIALS

A. Remove waste materials from Project site.
1. Do not allow removed materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn removed materials.

3.08 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective removal operations. Return adjacent areas to condition existing before selective removal operations began.

END OF SECTION 024119

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SECTION 028213
ASBESTOS ABATEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. This asbestos abatement Project will consist of the removal and disposal of asbestos containing materials at the **Middle School & Elementary School** in **Greenwood Lake, NY**. The scope of work is indicated on the drawings.

B. Provide abatement of large, small and minor amounts of asbestos in accordance with definition and descriptions of Code 56 and as follows.

C. This Section includes the following:
   1. Pipe Insulations.
   2. Vinyl asbestos floor tile.
   3. Mastics.
   4. Other ACM as indicated.

D. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the work.

E. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.

F. Working hours shall be as required and approved by the Owner. Asbestos abatement activities including, but not limited to, work area preparation, gross removal activities, cleaning activities, waste removal, etc. may need to be performed during ‘off-hours’ (including nights and weekends). In addition, multiple mobilizations may be required to perform the work identified in this project. The Contractor shall coordinate all Work with the facility and Owner’s representative regarding scheduling.

G. Change Orders Due to Variances: Any variance to Regulatory Requirements submitted by the Contractor and approved by the Regulatory Agency shall be executed upon approval by the Owner pursuant to review of change in scope of work and change in contract cost resulting in cost.
   1. Change Orders shall be prepared and issued in accordance with Division 01 Section “Contract Modification Procedures.”
   2. Variances which include the use of a remote personal decontamination enclosure system for interior abatement will not be permitted when asbestos removal includes friable material other than vinyl asbestos tile or approved glove bag operations.

1.02 RELATED SECTIONS

A. Division 01 Section "Summary" for use of premises and Owner-occupancy requirements.

B. Division 01 Section “Asbestos Testing Laboratory Services” for Owner-provided air-monitoring services.

C. Division 01 Section "Temporary Facilities and Controls" for general temporary construction and environmental-protection measures for demolition operations.

D. Division 02 Section "Selective Structure Removal" for removal of selected portions of buildings and structures that are not ACM.

E. Division 09 for all resilient flooring finishes and the abatement work that may affect the installation of new materials

1.03 DEFINITIONS

A. Abatement: Any portion of a Project that included procedures to control release from any asbestos containing material. This includes removal, encapsulation, repair or handling or possible exposure from construction related work that may result in the release of asbestos fibers.

B. ACM: Asbestos-containing materials or asbestos-contaminated materials. Refer to Division 00 Section “Existing Hazardous Materials Information” for reports providing information on existing ACM.

C. Regulatory Requirements: Laws, rules and regulations of authorities having jurisdiction over the handling, removal, transportation and disposal of ACM, including local, state and federal regulations listed under “Quality Assurance” article.

D. Remove: Detach items from existing construction and legally dispose of them off-site.

E. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

F. TSI: Thermal Systems Insulation

G. VAT: Vinyl Asbestos Tile

1.04 PERMITS AND COMPLIANCE

A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.

B. Perform asbestos related Work in accordance with New York State Industrial Code Rule 56, 40 CFR 61, and 29 CFR 1926, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements. Effective September 5, 2006 all work conducted must be in accord with amended ICR-56 that was adopted on January 11, 2006.

C. The Contractor and its Subcontractors performing asbestos abatement work must maintain current licenses pursuant to New York State Department of Labor and Department of Environmental Conservation for all Work related to this Project, including the removal, handling, transport, and disposal of asbestos containing materials. The Contractor is responsible for making sure that its Subcontractors performing this work are compliant with the amended ICR 56.

D. The Contractor must have and submit proof upon request that any persons employed by the Contractor to engage in or supervise Work on any asbestos Project have a valid NYS asbestos handling certificate pursuant to Industrial Code Rule 56.

E. The Contractor shall comply fully with any variances secured from regulatory agencies following Owner approval in the performance of the Work. Should the Contractor choose to apply for a site specific variance, approval of the Owner is first required. Any Contractor submitted petition for a site specific variance must be submitted by the Contractor at their cost a minimum of two weeks prior to commencement of the project. Any petition for variance must be completed and submitted by a person possessing a valid NYSDOL Project Designer certification.

F. It is the sole responsibility of the Contractor to determine what, if any, patents are applicable to the Project. The Contractor shall pay all royalties and/or license fees. He shall defend all suits or claims for infringement of any patent rights and save the Owner, Architect, Engineer, Environmental Consultant, and Construction Manager harmless from loss, including attorney's fees, on account thereof.

G. Failure to adhere to the Project Documents shall constitute a breach of the Contract and the Owner shall have the right to and may terminate the Contract provided, however, the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.

1.05 APPLICABLE STANDARDS AND REGULATIONS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning ACM demolition. Comply with hauling and disposal regulations of authorities having jurisdiction. Comply with the current and applicable portions of the following:
   1. New York State Regulations:
      a. 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 adopted March 7, 2007 (DOL) referred to as “Code Rule 56” of the NYS Codes, Rules and Regulations (Statutory Authority: New York State Labor Law Section 906).
         1) Exception: Variances obtained in accordance with Article 30 of the Labor Law.
      b. 6 NYCRR, Parts 360, 364, Disposal and Transportation (DEC)
      c. 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (DOH)
      d. 12NYCRR56, New York State School Asbestos Safety Act (SASA).
   2. Federal Regulations:
      a. Asbestos Hazard Emergency Response Act (AHERA) regulations, EPA Final Rule and Notice for Asbestos-Containing Material in Schools, 40 CFR Part 763.
      b. 29 CFR 1910.1001, "Asbestos" (OSHA)
      c. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
      d. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
      e. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
      f. 29 CFR 1926, "Construction Industry" (OSHA)
      g. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophyllite, and Actinolite" (OSHA)
      h. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
      i. 40 CFR 61, Subpart A, "General Provisions" (EPA)
      j. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (EPA)
      k. 49 CFR 171-172, Transportation Standards (DOT)
   3. Regulations and Requirements of NYS Agencies :
      a. Building Code of New York State (BCNYS).
      b. New York State Education Department (SED).
      c. New York State Department of Labor (DOL).
      d. New York State Department of Health (DOH).
      e. New York State Department of Environmental Conservation (DEC).
   4. Regulations and Requirements of Federal Agencies:
      a. Occupational Safety and Health Administration (OSHA).
      b. United States Environmental Protection Agency (EPA).
   5. National Standards:
      a. National Electrical Code (NEC).

1.06 STANDARDS AND GUIDANCE DOCUMENTS:

A. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection

B. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems

C. EPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)

D. EPA 530-SW-85-007, Asbestos Waste Management Guidance

1.07 QUALITY ASSURANCE

A. ACM Demolition Firm Qualifications: A fully-licensed, certified and experienced firm that has qualified workers specialized in ACM demolition work similar in material and extent to that indicated for this Project.
   1. Firms shall be EPA-certified, and as follows:
      a. Firms shall be certified by the NYS Commissioner of Labor.
   2. Workers shall have successfully completed an EPA-certified safety training program, and as follows:
      a. All workers shall be certified by the NYS Department of Health.
   3. Firms that employ workers who are fully licensed and certified in accordance with Regulatory Requirements to perform the Work indicated may be qualified as determined by the Architect.

1.08 SUBMITTALS

A. Qualification Data: For firm and workers performing ACM demolition.
   1. Licenses and certifications.
      a. EPA Certifications.
      b. NYS Asbestos Handling Licenses.
   2. Notice of Project Commencement: Per EPA requirements.

B. Schedule of ACM Demolition Activities: Indicate the following:
   1. Detailed sequence of ACM demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Use of elevator and stairs.
   5. Locations and construction of proposed containment partitions and means of egress.
   6. Work area entry and exit procedures.
   7. Equipment and waste container decontamination and removal procedures, including waste decontamination enclosure systems.
   8. Engineering controls for ventilation and negative pressure.
   9. Signage as required.
   10. Locations and construction of proposed personal decontamination enclosure systems.
   11. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
   12. Means of protection for items to remain and items in path of ACM waste removal from building.
   13. Coordination with Owner’s air sampling in areas where ACM removal is proceeding or completed.

C. Pre-Work Submittals: Within 7 days prior to the pre-construction conference, the Contractor shall submit 3 copies of the documents listed below:
   1. Contractor and Subcontractor licenses issued by New York State Department of Labor.
   2. A list of all Workers used in the performance of the Project, including name and a copy of their current NYSDOL Asbestos certification.
   3. For each Worker used in the performance of the Project, submit required employee statements including current Medical Examination Statement, current asbestos training certification, Worker's Acknowledgment Statement, Respirator Fit Test, and Employee Training Statement.

4. A list of Projects performed within the past two (2) years including the dollar value of all Projects. Provide Project references to include Owner, consultant, and air monitoring firm's name, contact persons, address, and phone number.
5. Progress Schedule:
6. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
7. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.
8. Project Notifications: As required by Federal and State regulatory agencies together with proof of transmittal (i.e. certified mail return receipt).
9. Building Occupant Notification: As required by regulatory agencies.
10. Abatement Work Plan: Provide plans that clearly indicate the following:
    a. All Work Areas/containments numbered sequentially.
    b. Locations and types of all decontamination enclosures.
    c. Entrances and exits to the Work Areas/containments.
    d. Type of abatement activity/technique for each Work Area/containment.
    e. Number and location of negative air units and exhaust. Also provide calculations for determining number of negative air pressure units.
    f. Proposed location and construction of storage facilities and field office.
    g. Location of water and electrical connections to building services.
    h. Waste transport routes through the building to the waste storage container.
11. Disposal Site/Landfill Permit from applicable regulatory agency.
12. NYS Department of Environmental Conservation Waste Transporter Permit.
13. Material Safety Data Sheets of supplies/chemicals to be used on the Project.

D. On-Site Submittals: Refer to Part 3.01.D for all submittals, documentation, and postings required to be maintained on-site during abatement activities.

E. Project Close-out Submittals: Within 30 days of project completion, the Contractor shall submit (3) bound copies of Project Records, Logs, Inspections and Chain-of Custody per Regulatory Requirements.
1. Originals of all waste disposal manifests, seals, and disposal logs.
2. Daily progress log, including the entry/exit log.
3. Final project notifications and variances.
4. Submit all material, product and equipment data used by the Contractor during the asbestos abatement project, including manufacturer's name, specifications and application instructions for surfactants, encapsulants and removal equipment.
5. Submit manufacturer's data regarding EPA- and OSHA-approved containment, storage products, and removal equipment.

F. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
1. Submit name and permit of the Industrial Waste Hauler in accordance with Title 6 NYCRR364 for transporting of waste asbestos-containing materials to a disposal site. Include authorization from the intended disposal site.
2. Submit name and permit in accordance with Title 6 NYCRR360, issued by the NYS DEC for acceptable landfill sites.

1.09 NOTICES

A. The Contractor shall provide notification of intent to commence asbestos abatement activities as indicated below.

1. At least ten (10) Working days prior to beginning abatement activities, send written notification to:
   S. Environmental Protection Agency
   National Emissions Standards for Hazardous Air Pollutants (NESHAPS) Coordinator
   26 Federal Plaza
   New York, NY 10007
2. At least ten (10) days prior to beginning abatement activities send written notification to:
   New York State Department of Labor
   Division of Safety and Health, Asbestos Control Program
   State Office Campus Building 12 - Room 454
   Albany, NY 12240

B. The Contractor is required to send notifications to regulatory agencies via mail or package delivery service that will provide proof of delivery and receipt.

C. The Contractor shall post and/or provide Building Occupant Notification at least 10 days prior to beginning abatement activities as required by NYS Industrial Code Rule 56. The posting shall include the following information:
1. The locations of the abatement Project.
2. The amounts and types of asbestos containing materials being abated.
3. The commencement and completion dates of the Project.
4. The name, address, and asbestos license number of the Abatement Contractor.
5. The name, address, and asbestos license number of the Environmental Consultant and laboratory.

1.10 PROJECT MONITORING AND AIR SAMPLING

A. The Owner has engaged the services of a NYSDOL certified Project Monitor and Air Technician (Environmental Consultant) who shall serve as the Owner's Representative in regard to the performance of the asbestos abatement Project and provide direction as required throughout the entire abatement period.

B. The Contractor is required to ensure cooperation of its personnel with the Consultant for the air sampling and Project monitoring functions described below. The Contractor shall comply with all direction given by the Consultant during the course of the Project.

C. The Consultant shall provide the following administrative services:
1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
2. Assure that all notifications to governmental agencies by the Contractor are submitted in a timely manner and are correct in content.
3. Review and approve the Contractor's OSHA compliance testing laboratory.

D. The Consultant shall staff the Project with a trained and certified person(s) to act on the Owner's behalf at the job site. The Consultant shall provide the necessary air sampling as required by NYSDOL Code Rule 56 and the Site Specific Variance obtained for this project. In addition, they shall provide the final visual inspection as required by NYSDOL Code Rule 56-9.1(d) (1) and the Site Specific Variance.

1.11 CONTRACTOR AIR SAMPLING

A. In addition to the requirements of OSHA 1926.1101, the Contractor shall be required to perform personal air monitoring every Work shift in each Work Area during which abatement activities occur in order to determine that appropriate respiratory protection is being worn and utilized.

B. The Contractor shall conduct air sampling that is representative of both the 8-hour time weighted average and 30-minute short-term exposures to indicate compliance with the permissible exposure and excursion limits.

C. The Contractor's laboratory analysis of air samples shall be conducted by an NYS DOH ELAP approved laboratory, subject to approval of the Environmental Consultant.

D. Results of personnel air sample analyses shall be available, verbally, within twenty-four (24) hours of sampling and shall be posted upon receipt. Written laboratory reports shall be delivered and posted at the Work site within five (5) days. Failure to comply with these requirements may result in all work being stopped until compliance is achieved.

1.12 PROJECT SUPERVISOR

A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:
   1. The Project Supervisor shall hold New York State certification as an Asbestos Supervisor.
   2. The Project Supervisor shall meet the requirements of a "Competent Person" as defined by OSHA 1926.1101 and shall have a minimum of one year experience as a supervisor.
   3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.

B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete. The Project Supervisor cannot be removed from the Project without the written consent of the Owner and the Environmental Consultant. The Project Supervisor shall be removed from the Project if so requested by the Owner.

C. The Project Supervisor shall maintain the Project Log Book required by New York State Department of Labor and section 2.03 of the specifications and the Waste Disposal Log required by section 4.04 of the specifications.

D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the Asbestos Project Monitor.

1.13 MEDICAL REQUIREMENTS

A. Before exposure to airborne asbestos fibers, provide Workers with a comprehensive medical examination as required by 29 CFR 1910.1001, and 29 CFR 1926.1101.
   1. This examination is not required if adequate records show the employee has been examined as required by 29 CFR 1910.1001, and 29 CFR 1926.1101 within the past year.
   2. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos fibers and within thirty (30) calendar days before or after the termination of employment in such occupations.

B. As required by 29 CFR 1910.1001, and 29 CFR 1926.1101 maintain complete and accurate records of employees' medical examinations for a period of thirty (30) years after termination of employment and make records of the required medical examinations available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health (NIOSH), authorized representatives of either of them, and an employees physician upon the request of the employee or former employee.

C. The Contractor shall furnish the Owner evidence of its firm's medical surveillance program required under 29 CFR 1910.1001, and 29 CFR 1926.1101.

1.14 TRAINING

A. As required by applicable regulations, prior to assignment to asbestos Work instruct each employee with regard to the hazards of asbestos, safety and health precautions, and the use and requirements of protective clothing and equipment.

B. Establish a respirator program as required by ANSI Z88.2 and 29 CFR 1910.134, and 29 CFR 1926.1101. Provide respirator training and fit testing.

1.15 RESPIRATORY PROTECTION

A. Select respirators from those approved by the Mine Safety and Health Administration (MSHA), and the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

B. Respirators shall be individually fit-tested to personnel under the direction of an Industrial Hygienist on a yearly basis. Fit-tested respirators shall be permanently marked to identify the individual fitted, and use shall be limited to that individual. Fit-test records shall be maintained on site for each employee.

C. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators (PAPR) are the minimum allowable respiratory protection permitted to be utilized during gross removal operations.

D. No respirators shall be issued to personnel without such personnel participating in a respirator training program.

E. High Efficiency Particulate Air (HEPA) respirator filters shall be approved by NIOSH and shall conform to the OSHA requirements in 29 CFR 1910.134 and 29 CFR 1926.1101.

F. A storage area for respirators shall be provided by the Contractor in the clean room side of the personnel decontamination enclosure where they will be kept in a clean environment.

G. The Contractor shall provide and make available a sufficient quantity of respirator filters so that filter changes can be made as necessary during the work day. Filters will be removed and discarded during the decontamination process. Filters cannot be reused. Filters must be changed if breathing becomes difficult.

H. Filters used with negative pressure air purifying respirators shall not be used any longer than one eight (8) hour work day.

I. Any authorized visitor, Worker, or supervisor found in the Work Area not wearing the required respiratory protection shall be removed from the Project site and not be permitted to return.

J. The Contractor shall have at least two (2) Powered Air Purifying Respirators stored on site designated for authorized visitors use. Appropriate respirator filters for authorized visitors shall be made available by the Contractor.

1.16 DELIVERY AND STORAGE

A. Deliver all materials to the job site in original packages with containers bearing manufacturer's name and label.

B. Store all materials at the job site in a suitable and designated area.
   1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.
   2. Protect materials from unintended contamination and theft.
   3. Storage areas shall be kept clean and organized.

C. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified.

1.17 TEMPORARY UTILITIES

A. Shut down and lock out all electrical power to the asbestos Work Areas.

B. Provide temporary 120-240 volt, single phase, three wire, 100 amp electric service with Ground Fault Circuit Interrupters (GFCI) for all electric requirements within the asbestos Work Area.
   1. Where available, obtain from Owner's existing system. Otherwise provide power from other sources (i.e. generator).
   2. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
   3. Provide wiring and receptacles as required by the Environmental Consultant for air sampling equipment.
   4. All power to the Work Area shall be brought in from outside the area through GFIC's at the source.

C. Provide temporary lighting with "weatherproof" fixtures for all Work Areas including decontamination chambers.
   1. The entire Work Area shall be kept illuminated at all times.
   2. Provide lighting as required by the Environmental Consultant for the purposes of performing required inspections.

D. All temporary devices and wiring used in the Work Area shall be capable of decontamination procedures including HEPA vacuuming and wet-wiping.

E. Utilize domestic water service, if available, from Owner's existing system. Provide hot water heaters with sufficient capacity to meet Project demands, where applicable.

1.18 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to ACM demolition area. Conduct ACM demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with ACM demolition.

D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during ACM demolition operations.
   1. Maintain fire-protection facilities in service during ACM demolition operations.

E. The work practice of “wrap and cut” will not be permitted as a sole measure of removal without proper containment barriers in place in any areas that will be reoccupied after the abatement work is complete.

F. Change Orders Due to Variances: Any variance to Regulatory Requirements submitted by the Contractor and approved by the Regulatory Agency shall be executed upon approval by the Owner pursuant to review of change in scope of work and change in contract cost resulting in credit.
   1. Change Orders shall be prepared and issued in accordance with Division 01 Section “Contract Modification Procedures.”
   2. Variances which include the use of a remote personal decontamination enclosure system for interior abatement will not be permitted when asbestos removal includes friable material other than vinyl asbestos tile or approved glove bag operations.

1.19 RECORDKEEPING: COMPLY WITH REGULATORY REQUIREMENTS.

A. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.20 SPECIAL JOB CONDITIONS

A. Any special job conditions, including variances obtained by the Owner or the Contractor, shall be adhered to by the Contractor.

B. Wrap and Cut method of removal will not be permitted anywhere on this project without prior consent. All Wrap and Cut removals shall be done within an area under full containment.

1.21 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during ACM demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.01 PROTECTIVE CLOTHING

A. Provide personnel utilized during the Project with disposable protective whole body clothing, head coverings, gloves and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber for comfort, but shall not be used alone. Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of tape, or provide disposable coverings with elastic wrists or tops.

B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.

C. Eye protection and hard hats shall be provided and made available for all personnel entering any Work Area.

D. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.02 SIGNS AND LABELS

A. Provide warning signs and barrier tapes at all approaches to asbestos Work Areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.

1. Provide danger signs in vertical format conforming to 29 CFR 1926.1101, minimum 20" x 14" displaying the following legend.

DANGER
ASBESTOS CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

2. Provide 3" wide yellow barrier tape printed with black lettered, "DANGER ASBESTOS REMOVAL". Locate barrier tape across all corridors, entrances and access routes to asbestos Work Area. Install tape 3' to 4' AFF.

B. Provide asbestos danger labels affixed to all asbestos materials, scrap, waste, debris and other products contaminated with asbestos.

1. Provide asbestos danger labels of sufficient size to be clearly legible, displaying the following legend:

DANGER CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD

2. Provide the following asbestos labels, of sufficient size to be clearly legible, for display on waste containers (bags or drums) which will be used to transport asbestos contaminated material in accordance with United States Department of Transportation 49 CFR Parts 171 and 172:

RQ HAZARDOUS SUBSTANCE SOLID, NOS ORM-E, NA 9188 ASBESTOS

3. Generator identification information shall be affixed to each waste container indicating the following printed in indelible ink:
   Generator Name:
   Facility Name:
   Facility Address:

2.03 PROJECT LOG BOOK

A. Provide a permanently bound Project log book. Log book shall contain on title page the Project name, name, address and phone number of Owner; name, address and phone number of Environmental Consultant; name, address and phone number of Abatement Contractor; emergency numbers including, but not limited to local Fire/Rescue department.

B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.

C. All persons entering and exiting the Work Area shall sign the log and include name, social security number, and time each time they enter the work area.

D. The Project Supervisor shall document all Work performed daily and note all inspections required by NYS Industrial Code Rule 56, i.e. testing and inspection of barriers and enclosures.

2.04 SCAFFOLDING AND LADDERS

A. Provide all scaffolding and/or staging as necessary to accomplish the Work of this Contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding and ladders shall comply with all applicable OSHA construction industry standards.

B. Provide scaffolding and ladders as required by the Environmental Consultant for the purposes of performing required inspections.

2.05 SURFACTANT (AMENDED WATER)

A. Wet all asbestos-containing materials prior to removal with surfactant mixed and applied in accordance with manufacturer's printed instructions.

B. Approved Manufacturer:
   1. International Protective Coatings Corp.: Serpiflex Shield
   2. American Coatings Corp.: EPA 55 Asbestos Removal Agent
   3. Certified Technologies: CerTane 2075 Penetrating Surfactant
   4. Owner’s Representative shall have final approval of equals.

2.06 ENCAPSULANT

A. Encapsulant shall be tinted or pigmented so that application when dry is readily discernible.

B. Approved Manufacturer:
   1. International Protective Coatings Corp.: Serpiflex Shield
   2. American Coatings Corp.: FNE High Temperature Sealant

3. Certified Technologies: CerTane 1000 Post Removal Encapsulant
4. Owner's Representative shall have final approval of equals.

2.07 DISPOSAL BAGS, DRUMS, AND CONTAINERS

A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels. Bags shall also be imprinted with U.S. Department of Transportation required markings.

B. Provide 30 or 55 gallon capacity fiber or metal drums capable of being sealed air and water tight if asbestos waste has the potential to damage or puncture disposal bags. Affix asbestos caution labels on lids and at one-third points around drum circumference to assure ready identification.

C. Containers and bags must be labeled with the names of the waste generator and the location at which the waste was generated in accordance with 40 CFR Part 61 NESHAPS.

D. Labeled ACM waste containers or bags shall not be used for non-ACM waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as ACM waste.

2.08 HEPA VACUUM EQUIPMENT

A. All dry vacuuming performed under this contract shall be performed with High Efficiency Particulate Absolute (HEPA) filter equipped industrial vacuums conforming to ANSI Z9.2.

B. Provide tools and specialized equipment including scraping nozzles with integral vacuum hoods connected to a HEPA vacuum with flexible hose.

C. Approved Manufacturers:
1. Hako Minuteman
2. Micro-Trap Inc.
3. Control Resource Systems, Inc.
4. Owner's Representative shall have final approval of equals.

2.09 POWER TOOLS

A. Any power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.

2.10 POLYETHYLENE SHEETING

A. All polyethylene (plastic) sheeting used on the Project (including but not limited to sheeting used for critical and isolation barriers, fixed objects, walls, floors, ceilings, waste container) shall be at least 6 mil fire retardant sheeting.

B. Decontamination enclosure systems shall utilize at least 6 mil opaque fire retardant plastic sheeting. At least 2 layers of 6 mil reinforced fire retardant plastic sheeting shall be used for the flooring.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Survey existing conditions and correlate with requirements indicated to determine extent of ACM demolition required.

3.02 PREPARATION

A. Site Access and Temporary Controls: Conduct ACM demolition and removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

2. Comply with Regulatory Requirements for access and protection to work areas.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

3.03 GENERAL DEMOLITION REQUIREMENTS

3.04 DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY ACM REMOVAL PROCEDURES, TO ACCOMMODATE NEW CONSTRUCTION AND AS INDICATED. USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF REGULATORY REQUIREMENTS AND AS FOLLOWS:

A. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage existing construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

B. Existing Items to Remain: Protect construction indicated to remain against damage and contamination during ACM demolition in accordance with Regulatory Requirements. When permitted by Architect, items deemed uncontaminated by Regulatory Requirements may be removed to a suitable, protected storage location prior to ACM demolition and cleaned and reinstalled in their original locations after ACM demolition operations are complete.

3.05 GENERAL REQUIREMENTS FOR ABATEMENT WORK

A. Should the area beyond the Work Area(s) become contaminated with asbestos containing materials or elevated fiber levels immediately stop Work and institute emergency procedures. Contaminated non-Work Areas shall be isolated and decontaminated in accordance with procedures established for asbestos removal. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.

B. Medical approval, fit test reports, Worker Acknowledgments, and NYS DOL certificates shall be on site prior to admittance of any Contractor’s employees to the asbestos Work Area.

C. Perform all asbestos removal Work using wet removal procedures. Mix and apply surfactant in accordance with manufacturer's written instructions. Dry removal procedures are not permitted. Sequential abatement of multiple types of ACM within a work area shall be followed by performing “top-down” abatement: most friable to least friable. Complete cleaning at conclusion of each abatement type and subsequent clearance sampling is required per amended ICR-56.

D. The following submittals, documentation, and postings shall be maintained on-site during abatement activities at a location approved by the Asbestos Project Monitor:
   1. Contractor license issued by New York State Department of Labor.
   2. Certification, Worker Training, Medical Surveillance, Acknowledgments:
      a. New York State Asbestos Handler certification cards for each person employed in the removal, handling, or disturbance of asbestos.
      b. Evidence that Workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.
      c. Documentation that Workers have been fit tested specifically for respirators used on the Project.
      d. Worker's Acknowledgments: Statements signed by each employee that the employee has received training in the proper handling of asbestos containing materials; understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.
   3. Daily OSHA personal air monitoring results.

4. NYS Department of Health ELAP certification for the laboratory that will be analyzing the OSHA personnel air samples.
5. NYS Department of Environmental Conservation Waste Transporter Permit.
6. Project documents (specifications and drawings.)
7. Notifications and variances (site specific and applicable.) Ensure that the most up-to-date notifications and variances are on-site.
8. Applicable regulations.
9. Material Safety Data Sheets of supplies/chemicals used on the Project.
10. Approved Abatement Work Plan.
11. List of emergency telephone numbers.
12. Waste Disposal Log
13. Project Log Book

E. The Work Area must be vacated by building occupants prior to decontamination enclosure construction and Work Area preparation.

F. All demolition necessary to access asbestos containing materials for removal must be conducted within negative pressure enclosures by licensed asbestos handlers. Demolition debris may be disposed of as construction and demolition debris provided the Asbestos Project Monitor determines that it is not contaminated with asbestos. If the demolition debris is determined to be contaminated, it must be disposed of as asbestos waste.

3.06 PERSONNEL DECONTAMINATION ENCLOSURE

A. Provide a personnel decontamination enclosure contiguous to the Work Area, where applicable. The decontamination enclosure shall be attached to the Work Area and not located within it. If the decontamination chamber is accessible to the public it shall be fully framed and sheathed to prevent unauthorized entry.

B. Access to the Work Area will be from the clean room through an air-lock to the shower, through an air lock to the equipment room, through an air lock to the Work Area. Each airlock shall be a minimum of three feet from door to door.

C. The decontamination enclosure ceiling and walls shall be covered with two layers of opaque 6 mil polyethylene sheeting. Two layers of reinforced polyethylene sheeting shall be used to cover the floor.

D. Establish a triple layer of six mil polyethylene at the decontamination chamber doorways, weighted to insure a tight seal of the enclosure. Prior to establishing doorway seals move all required tools, scaffolding, and equipment into the Work Area.

E. The entrance to the clean room shall have a lockable door. Provide suitable lockers for storage of Worker's street clothes. Storage for respirators along with replacement filters and disposable towels shall also be provided.

F. Provide a temporary shower with individual hot and cold water supplies and faucets. Provide a sufficient supply of soap and shampoo. There shall be one shower for every six Workers. The shower room shall be constructed in such a way so that travel through the shower chamber shall be through the shower. The shower shall not be able to be bypassed.

G. Shower water shall be drained, collected and filtered through a system with at least a 5.0 micron particle size collection capability containing a series of several filters with progressively smaller pore sizes to avoid rapid clogging of the system. The filtered waste water shall then be discharged in accordance with applicable codes and the contaminated filters disposed of as asbestos waste.

H. The equipment room shall be used for the storage of tools and equipment. A walk-off pan filled with water shall be located in the Work Area outside the equipment room for Workers to clean
   1. A labeled 6 mil plastic ACM waste bag for collection of contaminated clothing shall be located in this room.

I. The personal decontamination enclosure shall be cleaned and disinfected minimally at the end of each Work shift and as otherwise directed by the Asbestos Project Monitor.

3.07 WASTE DECONTAMINATION ENCLOSURE

A. Provide a waste decontamination enclosure contiguous to the Work area. The decontamination enclosure shall be attached to the Work Area and not located within it. If the decontamination chamber is accessible to the public it shall be fully framed and sheathed to prevent unauthorized entry.

B. The waste decontamination enclosure system shall consist of a washroom/cleanup room with an airlock to the Work Area and another airlock doorway to the holding area. Each airlock shall be a minimum of three feet from door to door. The entrance to the holding area shall have a lockable door.

C. The decontamination enclosure ceiling and walls shall be covered with two layers of opaque 6 mil polyethylene sheeting. Two layers of reinforced polyethylene sheeting shall be used to cover the floor.

D. Establish a triple layer of six mil polyethylene at the decontamination chamber doorways, weighted to insure a tight seal of the enclosure. Prior to establishing doorway seals move all required tools, scaffolding, and equipment into the Work Area.

E. Where there is only one egress from the Work Area, the holding area of the waste decontamination enclosure system may branch off from the personnel decontamination enclosure equipment room, which then serves as the waste wash room.

F. The waste wash room water shall be drained, collected, and filtered through a system with at least a 5.0 micron particle size collection capability containing a series of several filters with progressively smaller pore sizes to avoid rapid clogging of the system. The filtered waste water shall then be discharged in accordance with applicable codes and the contaminated filters disposed of as asbestos waste.

G. In small asbestos Projects where only one egress from the Work Area exists, the shower room may be used as a waste washroom. In this instance, the clean room shall not be used for waste storage, but shall be used for waste transfer to carts, which shall immediately be removed from this enclosure.

3.08 WORK AREA ENTRY AND EXIT PROCEDURES

A. Access to and from the asbestos Work Area is permitted only through the personnel decontamination enclosure unless otherwise stipulated in a site specific or applicable variance.

3.09 WORKERS SHALL SIGN THE ENTRY/EXIT LOG UPON EVERY ENTRY AND EXIT.

3.10 THE FOLLOWING PROCEDURES SHALL BE FOLLOWED WHEN ENTERING THE WORK AREA:

A. Before entering the Work Area, Workers shall proceed to the clean room, remove all street clothes, and don protective clothing, equipment, and respirators.

B. Workers shall proceed from the clean room through the shower room and the equipment room and into the Work Area.

3.11 THE FOLLOWING PROCEDURES SHALL BE FOLLOWED WHEN EXITING THE WORK AREA:

A. Before leaving the Work Area, gross asbestos contamination will be removed by brushing, wet cleaning and/or HEPA vacuuming.

B. In the equipment room, Workers shall remove disposable clothing, but not respirators, and shall place clothing in plastic disposal bags for disposal as contaminated debris prior to entering the shower room.

C. Workers shall shower thoroughly while wearing respirators then wash respirator with soap and water prior to removal.

D. Upon exiting the shower, Workers shall don new disposable clothing if the Work shift is to continue or street clothes to exit area. Under no circumstances shall Workers enter public non-Work Areas in disposable protective clothing.

3.12 WORK AREA PREPARATION

A. Asbestos danger signs shall be posted at all approaches to the asbestos Work Area. Post all emergency exits as emergency exits only on the Work Area side, post with asbestos caution signs on the non-Work Area side. Provide all non-Work Area stairs and corridors accessible to the asbestos Work Area with warning tapes at the base of stairs and beginning of corridors. Warning tapes shall be in addition to caution signs.

B. Shut down and lock out the building heating, ventilating, and air conditioning and electrical systems. Provide temporary electric power and lighting as specified herein.

C. All surfaces and objects within the Work Area shall be pre-cleaned using HEPA vacuuming and/or wet-wiping methods. Dry sweeping and any other methods that raise dust are prohibited. ACM shall not be disturbed during pre-cleaning.

D. Movable objects within the Work Area shall be HEPA vacuumed and/or wet-wiped and removed from the Work Area.

E. All non-movable equipment in the Work Area shall be completely covered with 2 layers of polyethylene sheeting, at least 6 mil in thickness, and secured in place with duct tape and/or spray adhesive.

F. Provide enclosure of the asbestos Work Area necessary to isolate it from unsealed areas of the building in accordance with the approved asbestos Work plan and as specified herein.

G. Seal off all openings including but not limited to windows, diffusers, grills, electrical outlets and boxes, doors, floor drains, and any other penetrations of the Work Area enclosure, using 2 layers of at least 6 mil polyethylene sheeting to form a critical barrier.

H. Provide temporary framing and sheathing at openings larger than 32 square feet forming the limits of the asbestos Work Area. Sheathing thickness must be a minimum of 3/8 inch and all sheathing shall be caulked and the Work Area side sealed with two layers of 6 mil polyethylene sheeting to form an isolation barrier.

I. Isolation barriers shall be installed at all elevator openings in the Work Area. Elevator controls shall be modified so that elevators bypass the Work Area.

J. Provide two layers of 6 mil polyethylene sheeting over all floor, wall, and ceiling surfaces. Isolation barriers shall also be covered with two layers (for a total of four layers). Sheeting shall be secured with spray adhesive and then sealed with duct tape. All joints in polyethylene sheeting shall overlap 12" minimum.

K. Unless otherwise specified for removal, the Contractor shall either protect all fiberglass insulation on piping, ductwork, tanks, etc. in the Work Area using two layers of six mil polyethylene or remove the insulation as asbestos containing waste. If the Contractor elects to remove the fiberglass insulation, he shall be responsible for reinsulation if reinsulation of removed ACM is part of the Contract or Project.

L. Frame out emergency exits. Provide double layer 6 mil polyethylene sheeting and tape seal opening. Post as emergency exits only. Within the Work Area, mark the locations and directions of emergency exits throughout the Work Area using exit signs and/or duct tape.

M. Remove all items attached to or in contact with ACM only after the Work Area enclosure is in place. HEPA vacuum and wet wipe with amended water all removed items prior to their removal from the Work Area and before the start of asbestos removal operations.

N. Suspended ceiling tiles shall only be removed after Work Area preparation is complete. Non-contaminated ceiling tiles shall be HEPA vacuumed and removed from the Work Area before asbestos removals begin. Contaminated ceiling tiles shall be disposed of as asbestos waste.

3.13 NEGATIVE AIR PRESSURE FILTRATION SYSTEM

A. Provide a portable asbestos filtration system that develops a minimum pressure differential of negative 0.02 in. of water column within all full enclosure areas relative to adjacent unsealed areas and that provides a minimum of 4 air changes per hour in the Work Area during abatement, where applicable.

B. Such filtration systems must be operated 24 hours per day during the entire Project until the final cleanup is completed and satisfactory results of the final air samples are received from the laboratory.

C. The system shall include a series of pre-filters and filters to provide High Efficiency Particulate Air (HEPA) filtration of particles down to 0.3 microns at 100% efficiency and below 0.3 microns at 99.9% efficiency. Provide sufficient replacement filters to replace pre-filters every 2 hours, secondary pre-filters every 24 hours, and primary HEPA filters every 600 hours of operation.

D. A minimum of one additional filtration unit of at least the same capacity as the primary unit(s) shall be installed and fully functional to be used during primary unit (s) filter changing and in case of primary failure. There shall be at least one back-up unit for every five primary units.

E. At no time will the unit exhaust indoors, within 50 feet of a receptor, including but not limited to windows and doors, or adversely affect the air intake of the building.

F. Upon electric power failure or shut-down of any filtration unit, all abatement activities shall stop immediately and only resume after power is restored and all filtration units are fully operating. For shut-downs longer than one hour, all openings into the Work Area, including the decontamination enclosures, shall be sealed.

G. During final air clearance sampling, negative air filtration shall be reduced to half the required air changes per hour.

H. The Contractor shall provide either a manometer or a photohelic style negative air pressure gauge with chart recorder to measure and record negative pressure differential across the Work Area barriers without interruption 24 hours per day as directed by the Environmental Consultant.

I. There shall be at least a 12 hour settling period after the Work Area is fully prepared and the negative filtration units have been started to ensure integrity of the barriers.

3.14 REMOVAL OF ASBESTOS CONTAINING MATERIALS

A. Asbestos-containing materials shall be removed in accordance with the Contract Documents and the approved Asbestos Work Plan.

B. Sufficiently wet asbestos materials with a low pressure, airless fine spray of surfactant to ensure full penetration prior to material removal. Re-wet material that does not display evidence of saturation.

C. One Worker shall continuously apply amended water while ACM is being removed.

D. Perform cutting, drilling, abrading, or any penetration or disturbance of asbestos containing material in a manner to minimize the dispersal of asbestos fibers into the air. Use equipment and methods specifically designed to limit generation of airborne asbestos particles. All power operated tools used shall be provided with HEPA equipped filtered local exhaust ventilation.

E. Upon removal of ACM from the substrate, the newly exposed surfaces shall be HEPA vacuumed and/or wet cleaned. Surfaces must be thoroughly cleaned using necessary methods and any required solvents to completely remove any adhesive, mastic, etc.

F. All removed material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate or whenever there is enough accumulation to fill a single bag or container. Maintain the surfaces of the Work Area free of accumulation of asbestos debris.

G. Dust-tight enclosed inclined chutes shall be used for materials dropped from distances greater than 10 ft.

H. Large components shall be wrapped in two layers of 6 mil polyethylene sheeting. Sharp components likely to tear disposal bags shall be placed in fiber drums or boxes and then wrapped with sheeting.

I. Power or pressure washers are not permitted for asbestos removal or clean-up procedures.

J. All open ends of pipe and duct insulation not scheduled for removal shall be encapsulated using lag cloth.

K. All construction and demolition debris determined by the Environmental Consultant to be contaminated with asbestos shall be handled and disposed of as asbestos waste.

L. The use of metal shovels, metal dust pans, etc. are not permitted inside the work area.

3.15 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION AND REMOVAL PROCEDURES

A. 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. The Work Area persons shall not enter the airlock.

B. The containers and equipment shall be removed from the airlock by persons stationed in the washroom during waste removal operations. The external surfaces of containers and equipment shall be cleaned a second time by wet cleaning.

C. 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, as the item's physical characteristics demand, and sealed airtight.

D. The clean re-containerized items shall be moved into the airlock that leads to the holding area. Workers in the washroom shall not enter this airlock or the Work Area until waste removal is finished for that period.

E. 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.

F. 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.

G. The exit from the decontamination enclosure system shall be secured to prevent unauthorized entry.

H. 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.

3.16 APPLICATION OF ENCAPSULANT

A. Following first cleaning and prior to first sheeting removal, and once Work Area has been rendered free of visible residues; a thin coat of encapsulant shall be applied to any surfaces in the Work Area which were not the subject of removal.

B. In no event shall encapsulant be applied to any surface that was the subject of removal prior to obtaining satisfactory air monitoring results.

C. Encapsulants shall be pigmented or tinted to provide an indication for completeness of coverage. The Asbestos Project Monitor shall determine adequacy of coverage.

3.17 WORK AREA DECONTAMINATION

A. Following completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, the following decontamination procedures shall be followed unless modified by a site specific variance.

B. First Cleaning:
   1. All bagged asbestos waste and unnecessary equipment shall be decontaminated and removed from the Work Area.
   2. All surfaces in the Work Area shall be wet cleaned. A wet-purpose shop vacuum may be used to pick up excess liquid, and may either be decontaminated prior to removal from the Work Area or disposed of as asbestos waste.
   3. The Asbestos Project Monitor shall conduct a visual inspection of the Work Area for cleanliness and completion of abatement.
   4. The Contractor shall then apply a thin coat of encapsulant to all surfaces in the Work Area that were not the subject of removal. In no event shall encapsulant be applied to any surface that was the subject of removal prior to obtaining satisfactory air monitoring results.
   5. After the encapsulant has dried, the first layer of polyethylene sheeting shall then be removed and bagged, and the Work Area shall be vacated for a minimum of 12 hours.

C. Second Cleaning
   1. All surfaces in the Work Area shall be HEPA vacuumed and/or wet cleaned.
   2. The Asbestos Project Monitor shall conduct a second visual inspection of the Work Area for cleanliness.
   3. The second layer of polyethylene sheeting shall be removed and bagged and the Work Area shall be vacated for a minimum of 12 hours.

D. Third Cleaning
   1. All surfaces in the Work Area shall be HEPA vacuumed and/or wet cleaned.

2. The Asbestos Project Monitor shall conduct a third visual inspection of the Work Area for cleanliness.
3. The Work Area shall be vacated for a minimum of 12 hours regardless of the cleaning method (HEPA vacuuming or wet cleaning) utilized.
4. Aggressive final clearance air sampling shall then be conducted by the Environmental Consultant.
5. Upon receipt of satisfactory final clearance air sampling results, the negative air pressure equipment can then be shut down and decontamination areas and isolation and critical barriers removed.

E. After isolation and critical barriers are removed, the Asbestos Project Monitor shall inspect the Work Area for cleanliness. If necessary, additional cleaning shall be performed by the Contractor as directed by the Asbestos Project Monitor.

F. As a result of any visual inspection by the Asbestos Project Monitor or should air sampling results indicate high fiber levels; the Contractor will clean or re-clean the affected areas at no additional expense to the Owner.

3.18 TENT ENCLOSURES

A. Tent enclosures may only be used in areas specifically permitted by NYS Department of Labor Code Rule 56 or a Project specific variance issued by the NYS Department of Labor.

B. The Contractor shall restrict access to the immediate area where tent removal procedures are taking place using barrier tape and/or construction barriers. Caution signs shall be posted.

C. Remote personnel and waste decontamination enclosures shall be constructed. Configuration shall be as required by Project size.

D. The Work Area shall be pre-cleaned. All objects and equipment that will remain in the restricted area during abatement shall be sealed with two layers of six mil polyethylene and tape.

E. The tent shall be a single use barrier constructed with a rigid frame and at least two layers of six mil polyethylene unless one layer of six mil polyethylene is otherwise permitted by a site specific variance. All seams shall be sealed airtight using duct tape and/or spray adhesive.

F. The tent shall be constructed with at least one airlock for worker/waste egress.

G. During removals, a HEPA vacuum or small capacity negative pressure filtration unit shall be used to provide a negative air pressure inside the tent.

H. Workers shall wear two disposable suits for all phases of Work. Workers exiting the tent shall HEPA vacuum the outer suit, enter the airlock, remove the outer suit and then place it back into the Work Area. A clean second suit shall be donned before exiting the airlock and proceeding to the decontamination enclosure or another work area.

I. OSHA compliance air monitoring is required per section 1.09.

J. ACM removal shall follow procedures defined in section 3.07.

K. Waste material shall be placed in properly labeled 6 mil plastic bags or other appropriate containers. The outside of the bags or containers shall be wet wiped and/or HEPA vacuumed before being passed into the airlock for double- bagging. The bags or containers shall then be transported to the decontamination enclosure and then bagged for a third time and transported to the waste storage container. All transportation of waste bags and containers outside the Work Area shall be in watertight carts.

L. Following completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, the following decontamination procedures shall be followed.

1. All bagged asbestos waste and unnecessary equipment shall be decontaminated and removed from the Work Area.
2. All surfaces in the Work Area shall be wet cleaned. A wet-purpose shop vacuum may be used to pick up excess liquid, and shall be decontaminated prior to removal from the Work Area.
3. The Asbestos Project Monitor shall conduct a visual inspection of the Work Area for cleanliness and completion of abatement.
4. The Contractor shall then apply a thin coat of encapsulant to all surfaces in the Work Area that were not the subject of removal. In no event shall encapsulant be applied to any surface that was the subject of removal prior to obtaining satisfactory air monitoring results.
5. After the encapsulant has dried, aggressive final clearance air sampling shall then be conducted by the Environmental Consultant.
6. Upon receipt of satisfactory final clearance air sampling results, the tent shall be collapsed into itself, placed in suitable disposal bags, and transported to the waste decontamination enclosure. Isolation and critical barriers shall then be removed.

3.19 GLOVEBAG REMOVAL

A. Glovebag removals may only be used as specifically permitted by NYS Department of Labor Code Rule 56 or a Project specific variance issued by the NYS Department of Labor. Glovebags may only be used on piping.

B. In addition to conformance with applicable regulations and variances, glovebag removals are only permitted to be conducted within tent enclosures complying with these specifications. Removal and disposals must also be conducted in conformance with all Project variance conditions.

C. The Contractor shall restrict access to the immediate area where tent/glovebag removal procedures are taking place using barrier tape and/or construction barriers. Caution signs shall be posted.

D. Remote personnel and waste decontamination enclosures shall be constructed. Configuration shall be as required by Project size.

E. The Work Area shall be pre-cleaned. All objects and equipment which will remain in the restricted area during abatement shall be sealed with two layers of six mil polyethylene and tape.

F. Glovebag removals shall utilize commercially available glovebags of at least six mil thickness. Use shall be in accordance with the manufacturer's instructions and the following minimum requirements:
   1. The sides of the glovebag shall be cut to fit the size pipe being removed. Tools shall be inserted into the attached tool pocket.
   2. The glovebag shall be placed around the pipe and the open edges shall be folded and sealed with staples and duct tape. The glovebag shall also be sealed at the pipe to form a tight seal.
   3. Openings shall be made in the glovebag for the wetting tube and HEPA vacuum hose. The opening shall be sealed to form a tight seal.
   4. All glovebags shall be smoke tested by the Asbestos Project Monitor before removal operations commence. Glovebags that do not pass the smoke test shall be resealed and then retested.
   5. After first wetting the materials to be removed, removal may commence ACM shall be continuously wetted. After removal of the ACM, the piping shall be scrubbed or brushed so that no visible ACM remains. Open ends of pipe insulation shall be encapsulated.

6. After the piping is cleaned, the inside of the glovebag shall be washed down and the wetting tube removed. Using the HEPA vacuum, the glovebag shall be collapsed and then twisted and sealed with tape with the ACM at the bottom of the bag.
7. A disposal bag shall be placed around the glovebag that is then detached from the pipe. The disposal bag is then sealed and transported to the decontamination enclosure.

G. After glovebag removals are complete, tent decontamination procedures shall be followed.

3.20 DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Resilient Floor Coverings: Remove floor coverings and adhesive according to Regulatory Requirements and recommendations in RFCI-WP and its Addendum.
1. Remove residual adhesive by mechanical means (bead blast) and prepare substrate for new floor coverings by one of the methods recommended by RFCI and in accordance with Regulatory Requirements.
a. No Solvent based mastic strippers are to be used.
2. Surfaces shall be treated to remove all residual solvents which woul otherwise cause poor adhesion of new flooring materials.

3.21 RESTORATION OF UTILITIES, FIRESTOPPING, AND FINISHES

A. After final clearance remove locks and restore electrical and HVAC systems. All temporary power shall be disconnected, power lockouts removed and power restored. All temporary plumbing shall be removed.

B. Finishes damaged by asbestos abatement activities including, but not limited to, plaster/paint damage due to duct tape and spray adhesives, and floor tile lifted due to wet or humid conditions, shall be restored prior to final payment.
1. Finishes unable to be restored shall be replaced under this Contract.
2. All foam and expandable foam products and materials used to seal Work Area openings shall be completely removed upon completion of abatement activities.

C. All penetrations (including, but not limited to, pipes, ducts, etc.) through fire rated construction shall be firestopped using materials and systems tested in accordance with ASTM E814 on Projects where reinsulation is part of the required work.

PART 4 - DISPOSAL OF ASBESTOS WASTE

4.01 APPLICABLE REGULATIONS

A. All asbestos waste shall be stored, transported and disposed of in accordance with the following regulations as a minimum:
1. NYS DEC 6 NYRCC part 360 and 364
2. US EPA NESHAPS 40 CFR 61
3. US EPA Asbestos Waste Management Guidance EPA/530-SW85
4. NYC Local Law 70/85 (for Projects located in New York City).

4.02 TRANSPORTATION AND DISPOSAL SITE

A. The Contractor's Hauler and Disposal Site shall be approved by the Owner.

B. The Contractor shall give twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal working hours unless otherwise specified. No waste may be taken from the site unless the Contractor and Environmental Consultant are present and the Environmental Consultant authorizes the release of the waste as described herein.

C. The Contractor shall have the Hauler provide the estimated date and time of arrival at the Disposal Site.

D. Upon arrival at the Project Site, the Hauler must possess and present to the Environmental Consultant a valid New York State Department of Environmental Conservation Part 364 Asbestos Hauler's Permit. The Environmental Consultant may verify the authenticity of the hauler's permit with the proper authority.

E. The Hauler, with the Contractor and the Environmental Consultant, shall inspect all material in the transport container prior to taking possession and signing the Asbestos Waste Manifests.

F. Unless specifically approved by the Owner, the Contractor shall not permit any off-site transfers of the waste or allow the waste to be transported or combined with any other off-site asbestos material. The Hauler must travel directly to the disposal site as identified on the notifications with no unauthorized stops.

4.03 WASTE STORAGE CONTAINERS

A. All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.). No open containers will be permitted on-site (i.e. open dumpster with canvas cover, etc.) unless specifically permitted by an applicable or site specific variance.

B. The Environmental Consultant shall verify that the waste storage container and/or truck tags (license plates) match that listed on the New York State Department of Environmental Conservation Part 364 permit. Any container not listed on the permit shall be removed from the site immediately.

C. The container shall be plasticized and sealed with a minimum of one (1) layer of 6 mil polyethylene on the sides and two (2) layers of 6 mil polyethylene on the floor. Once on site, it shall be kept locked at all times, except during load out. The waste container shall not be used for storage of equipment or contractor supplies.

D. While on-site, the container shall be labeled with EPA Danger signage:

DANGER CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD

E. The New York State Department of Environmental Conservation Asbestos Hauler's Permit number shall be stenciled on both sides and back of the container.

F. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.

G. If a lined and sealed open-top container is used pursuant to a site specific variance, a seal is not required.

H. The Owner may initiate random checks at the Disposal Site to insure that the procedures outlined herein are complied with.

4.04 OWNER'S AND HAULER'S ASBESTOS WASTE MANIFESTS

A. An Asbestos Waste Manifest shall be utilized in conjunction with the Asbestos Hauler's Manifest.

B. The Hauler's Manifest shall be completed by the Contractor and verified by the Environmental Consultant that all the information and amounts are accurate and the proper signatures are in place.

C. The Manifests shall have the appropriate signatures of the Environmental Consultant, the Contractor, and the Hauler representatives prior to any waste being removed from the site.

D. Copies of the completed Hauler's Manifest shall be retained by the Environmental Consultant and the Contractor and shall remain on site for inspection.

E. Upon arrival at the Disposal Site, the Hauler's Manifest shall be signed by the Disposal Facility operator to certify receipt of ACM covered by the manifest.

F. The Disposal Facility operator shall return the original Hauler's Manifest and the container seals to the Contractor.

G. The Contractor shall forward copies of the Hauler's Manifest and the container seals to the Environmental Consultant within 14 days of the waste container being removed from the site. Failure to do so may result in payment being withheld from the Contractor.

H. The Contractor shall utilize a Waste Disposal Log. This log shall be maintained by the Project Supervisor and shall be kept on site at all times.

I. Originals of all waste disposal manifests, seals, and disposal logs shall be submitted by the Contractor to the Owner with the final close-out documentation.

J. Clean adjacent structures and improvements of dust, dirt, and debris caused by ACM demolition operations in accordance with Regulatory Requirements. Return adjacent areas to condition existing before ACM demolition operations began.

END OF SECTION 028213

QuES&T

Quality Environmental Solutions & Technologies, Inc.

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

Prepared for:
CLARK PATTERSON LEE
50 Front Street, Suite 202,
Newburgh, NY 12550

at

GREENWOOD LAKE MIDDLE &
ELEMENTARY SCHOOL
1247 Lakes Road,
Monroe, NY 10950

February 9, 2024

QuES&T Project #23-5745

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

QuES&T

Quality Environmental Solutions & Technologies, Inc.

February 9, 2024

Clark Patterson Lee
50 Front Street, Suite 202,
Newburgh, NY 12550

ATTN: Lauren Tarsio

Via E-mail: ltarsio@cplteam.com

Re: Greenwood Lake Middle & Elementary School
Pre-Renovation Asbestos Inspection
QuES&T Project #23-5745

Dear Mrs. Tarsio,

Attached is the Pre-Renovation Inspection Report for Asbestos-containing Materials (ACM) identified throughout interior and exterior areas included within the above-referenced location(s) by **Qu**ality **E**nvironmental **S**olutions **& T**echnologies, Inc. **(QuES&T)**. The inspection included visual assessment and representative sampling for the detection of ACM in compliance with the requirements of Title 12 NYCRR Part 56-5.1.

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 Clark Patterson Lee in the environmental services area.

Sincerely,

Dillon Stamper
Field & Technical Services
NYS/AHERA Inspector/Project Monitor
Cert. #AH 23-6LUH4-SHAB

QuES&T

Quality Environmental Solutions & Technologies, Inc.

TABLE OF CONTENTS

I. INTRODUCTION:

Quality **E**nvironmental **S**olutions **& T**echnologies, Inc. **(QuES&T)** performed a Pre-Renovation Asbestos Survey, in conformance with Title 12 NYCRR Part 56-5.1, on November 3rd, 2023 & January 11th, 2024, for Clark Patterson Lee in support of the renovation project at Greenwood Lake Middle School located at 1247 Lakes Road, Monroe, NY 10950, and Greenwood Lake Elementary School located at 80 Waterstone Road, Greenwood Lake, NY 10925. 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.

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. Todd McAfee (Cert. #AH 23-6LUAF-SHAB), Mr. Shannon D. Talsma (Cert. #AH 23-61PEC-SHAB), and Mr. Dillon Stamper (Cert. #AH 23-6LUH4-SHAB) performed visual assessments throughout interior and exterior construction areas. A total of One Hundred Thirty-Four **(134)** samples of installed and accessible suspect building materials were analyzed by a laboratory approved under the NYSDOH ELAP. Eighty (**80**) samples were analyzed using Polarized Light Microscopy (PLM) for friable materials; Twenty-Nine (**29**) samples were analyzed using Polarized Light Microscopy (PLM-NOB) for non-friable organically bound materials; and Twenty-Five (**25**) 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 do 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:

- Wall Materials – Skim Coat Plaster, Rough Coat Plaster, Grout, Ceramic Wall Tile, Mortar, Joint Compound, Sheetrock, Adhesive, Mortar, Cove Base Molding
- Ceiling Materials – Skim Coat Plaster, Rough Coat Plaster, Ceiling Tile
- Flooring Materials – Mud Set, Ceramic Floor Tile, Grout, Mastic, Floor Tile
- Roofing Materials – ISO Foam, Perlite, Built-Up Roofing
- Miscellaneous Materials – Mudded Joint Packing, Spray on Fireproofing

III. IDENTIFIED ASBESTOS-CONTAINING MATERIALS (ACM):

IDENTIFIED ACM
Greenwood Lake UFSD
(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
Greenwood Lake Middle School				
1st Floor, Boy's and Girl's Locker Rooms, Upper Partition Wall/Soffit, On Sheetrock	Joint Compound	240	Yes	Good
1st/2nd Floor, 1973 Wing, Stairwell Landings*, 12"x12", Tan	Floor Tile	240	No	Good
Note: ACM Floor Tile Present on 2nd floor landings and half landings between 1st and 2nd floors. The grey 1'x1' floor tile on the first floor are non-ACM.				
Greenwood Lake Elementary School				
No ACM identified by PLM, PLM-NOB, and/or QTEM analysis of samples submitted to a NYSDOH ELAP approved laboratory in relation to the described scope of work.				

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.

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, renovated, 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, renovation, 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 of 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) to take actual field measurements within each listed location.

QuES&T
Quality Environmental Solutions & Technologies, Inc.

Appendix A:

ACM SAMPLE LOCATION DRAWINGS

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

Note: Approximately 240SF of ACM Floor Tile -12"x12" Tan
2nd Floor, 1973 Wing, Stairwell
Found in the stairwells in two locations at the mid-floor landing as well as the 2nd floor landing.

ACM LOCATION KEY	
	ACM 12" x12" Floor Tile

Drawing Not to Scale
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.

Date: 1/19/2024	Version # 1
Issued For: Asbestos Survey	
QuES&T Project #: 23-5745	
Project Manager: TM	**Prepared By:** DS

QuES&T

Quality Environmental
Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

Greenwood Lake UFSD
1247 Lakes Road,
Monroe, NY 10950

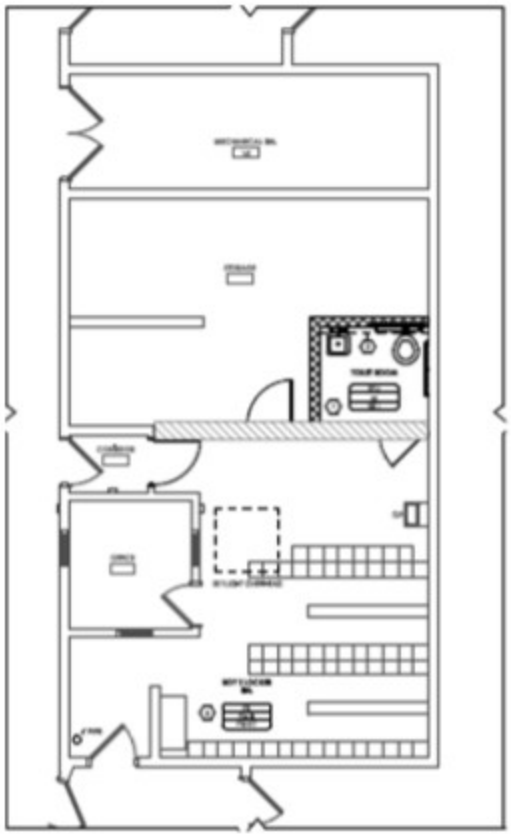
PROJECT LOCATION

Greenwood Lake Middle School
1247 Lakes Road,
Monroe, NY 10950

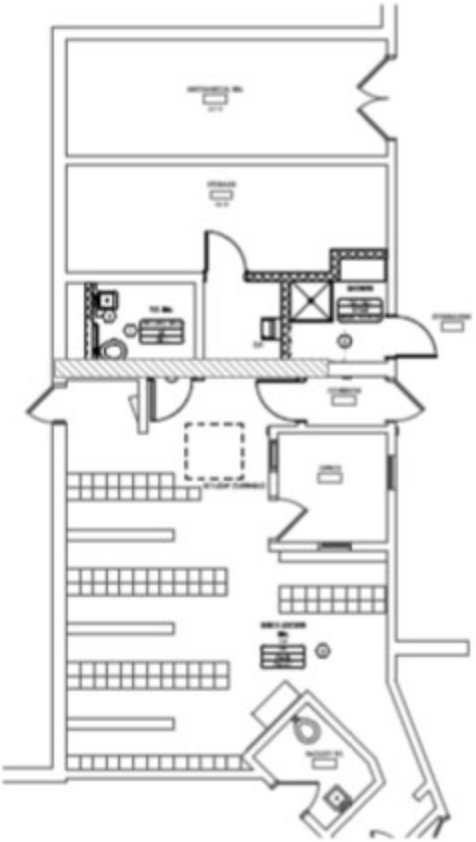
1973 WING STAIRWELL ACM LOCATIONS

ACM-01

Boys Locker Room



Girls Locker Room



Note: Approximately 120SF per Locker Room of ACM Joint Compound totaling approximately 240SF

1st Floor, Boys & Girls Locker Room, Partition Wall, On Sheetrock

SAMPLE LOCATION KEY	
	ACM Joint Compound

Drawing Not to Scale

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Issued For: Asbestos Survey	
QuES&T Project #: 23-5745	
Project Manager: TM	**Prepared By:** DS

QuES&T

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CLIENT

Greenwood Lake UFSD
1247 Lakes Road,
Monroe, NY 10950

PROJECT LOCATION

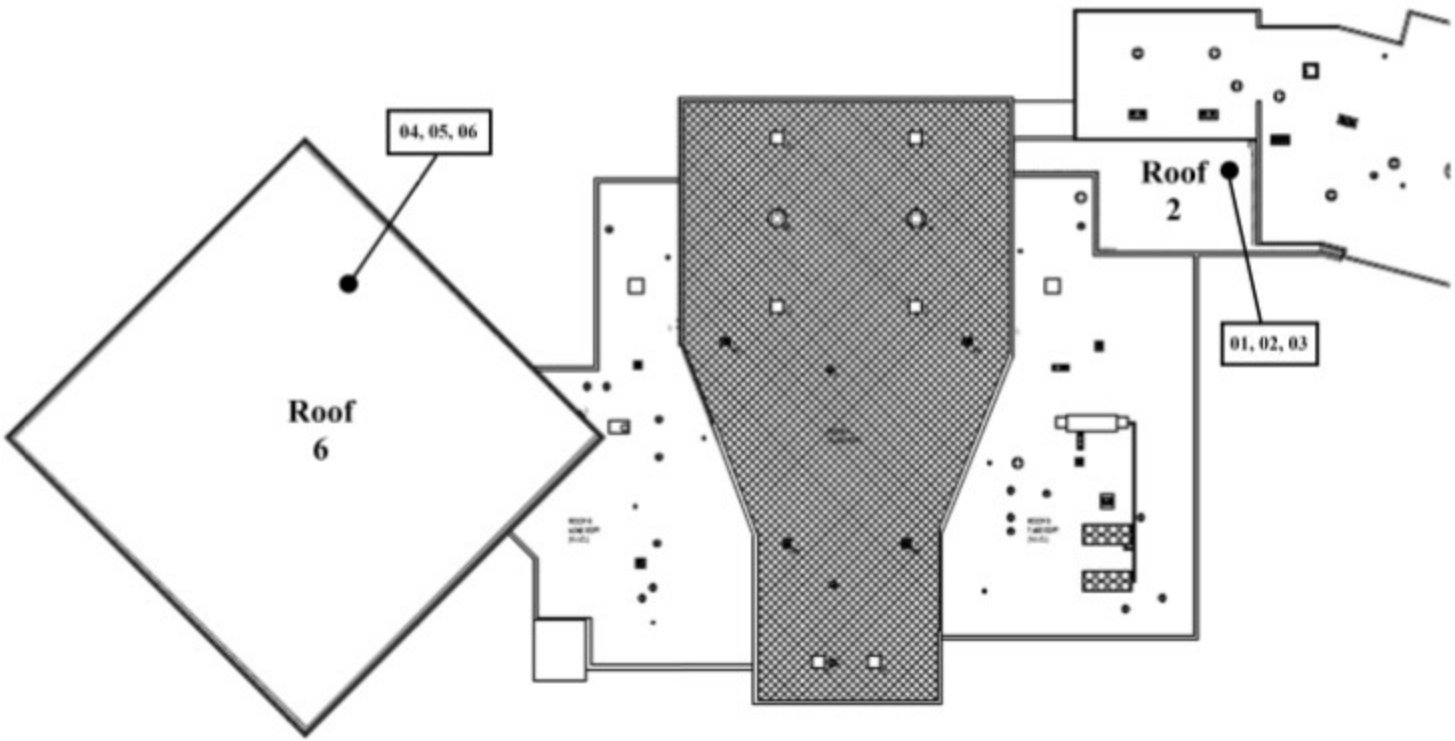
Greenwood Lake Middle School
1247 Lakes Road,
Monroe, NY 10950

BOYS & GIRLS LOCKER ROOM ACM LOCATIONS

ACM-02

Appendix B:

SAMPLE LOCATION DRAWINGS & RESULT



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale
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Date: 1/18/2024	Version # 1
Issued For: Asbestos Survey	
QuES&T Project #: 23-5745	
Project Manager: TM	**Prepared By:** DS

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

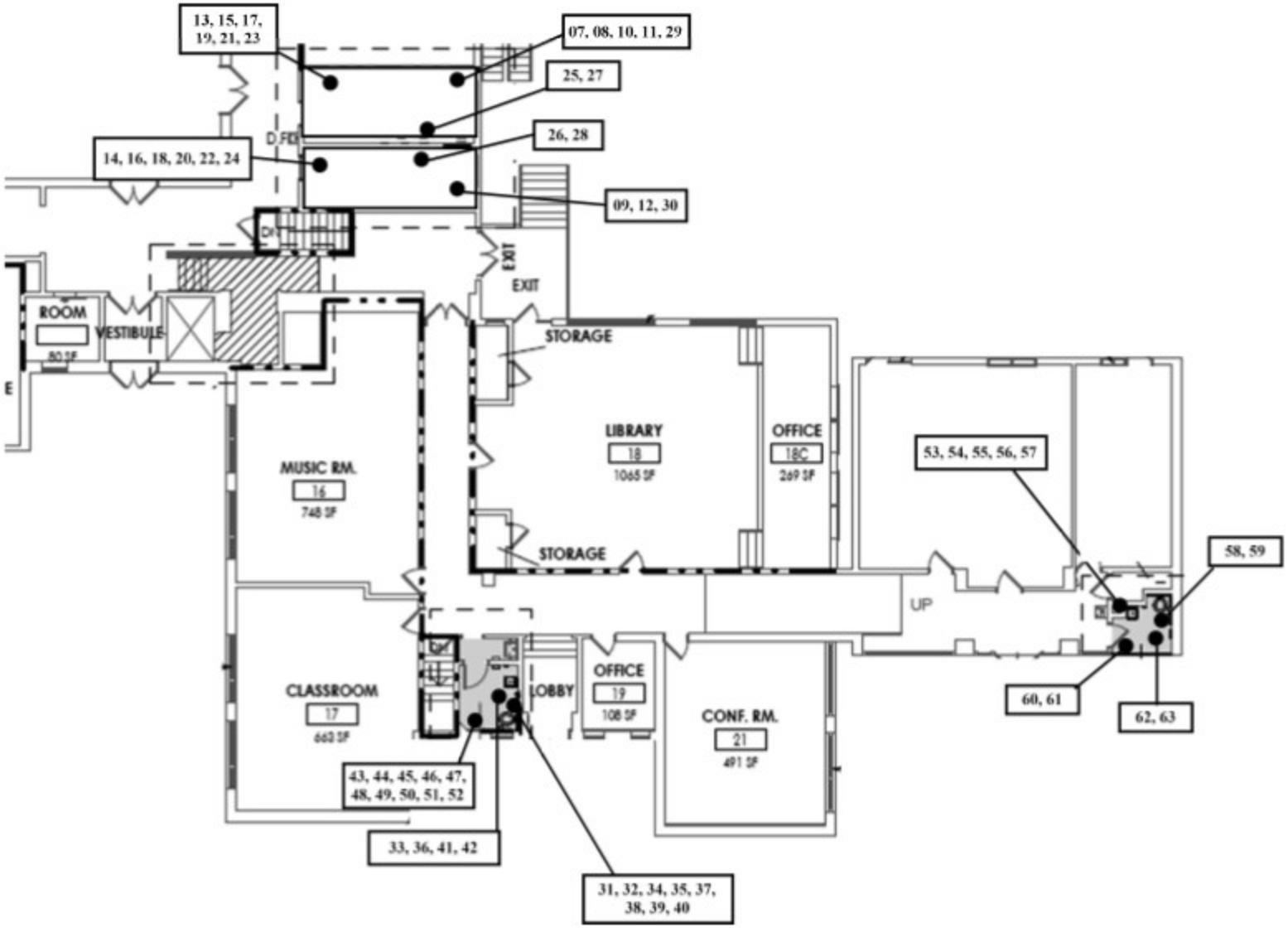
Greenwood Lake UFSD
1247 Lakes Road,
Monroe, NY 10950

PROJECT LOCATION

Greenwood Lake Middle School
1247 Lakes Road,
Monroe, NY 10950

ROOF SAMPLE LOCATIONS

SL-01



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale

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Date: 1/18/2024	Version # 1
Issued For: Asbestos Survey	
QuES&T Project #: 23-5745	
Project Manager: TM	Prepared By: DS

QuES&T

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CLIENT

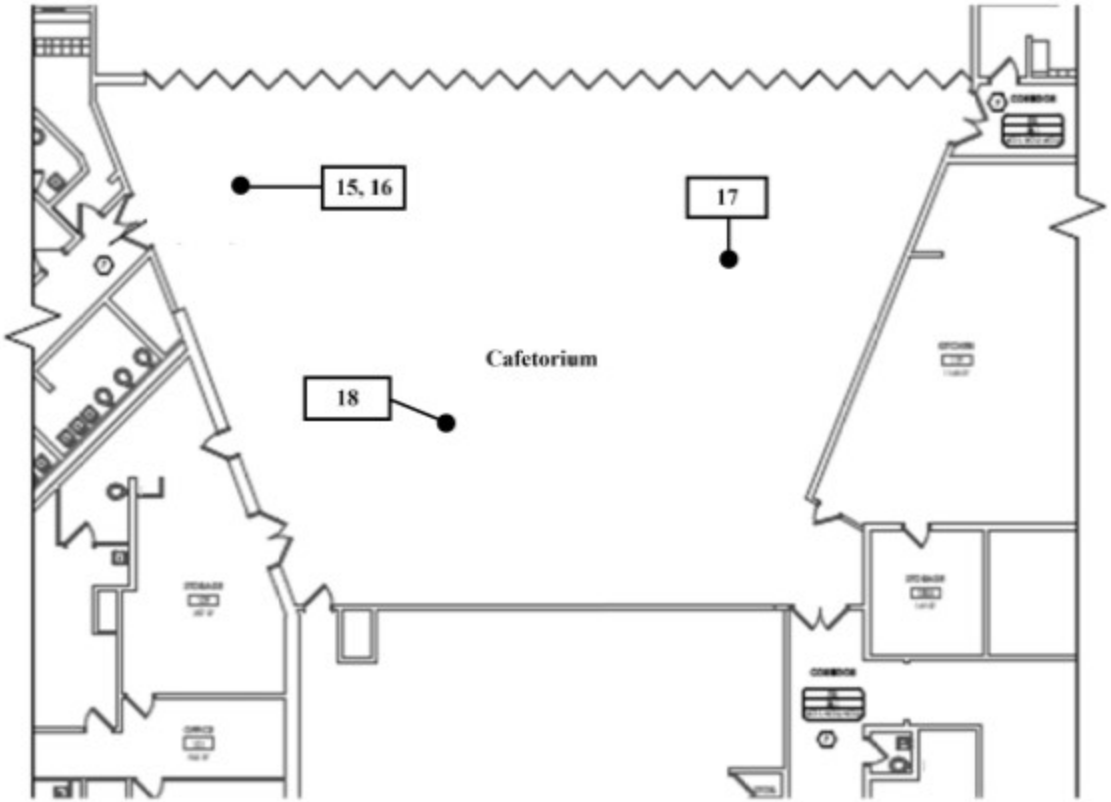
Greenwood Lake UFSD
1247 Lakes Road,
Monroe, NY 10950

PROJECT LOCATION

Greenwood Lake Elementary School
80 Waterstone Road,
Greenwood Lake, NY 10925

BATHROOM SAMPLE LOCATIONS

SL-02



SAMPLE LOCATION KEY	
●	Sample Location

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CLIENT

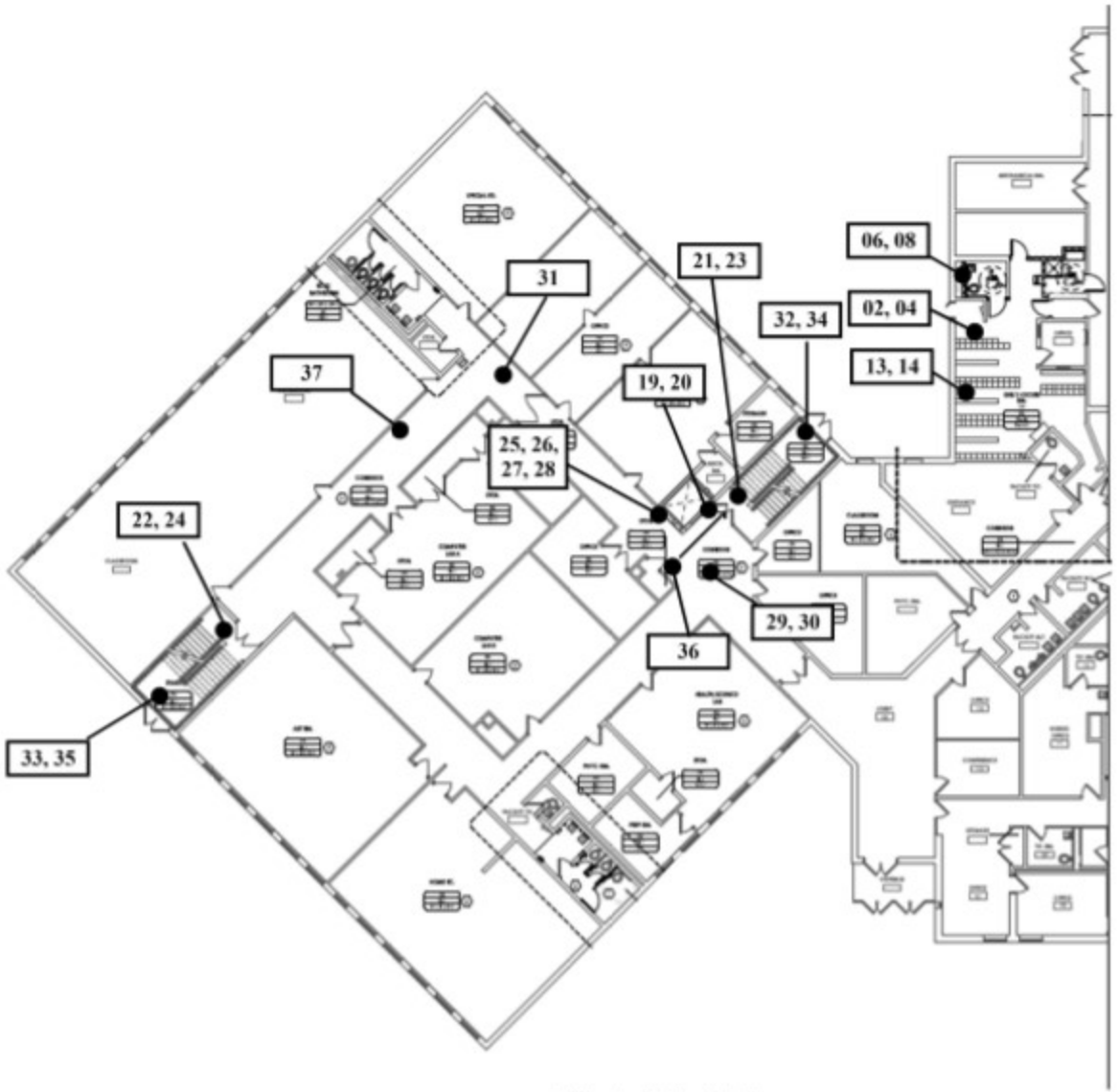
Greenwood Lake UFSD
1247 Lakes Road,
Monroe, NY 10950

PROJECT LOCATION

Greenwood Lake Middle School
1247 Lakes Road,
Monroe, NY 10950

CAFETORIUM SAMPLE LOCATIONS

SL-03



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale

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Issued For: Asbestos Survey	
QuES&T Project #: 23-5745	
Project Manager: TM	**Prepared By:** DS

QuES&T

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1376 Route 9
Wappingers Falls, NY 12590
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CLIENT

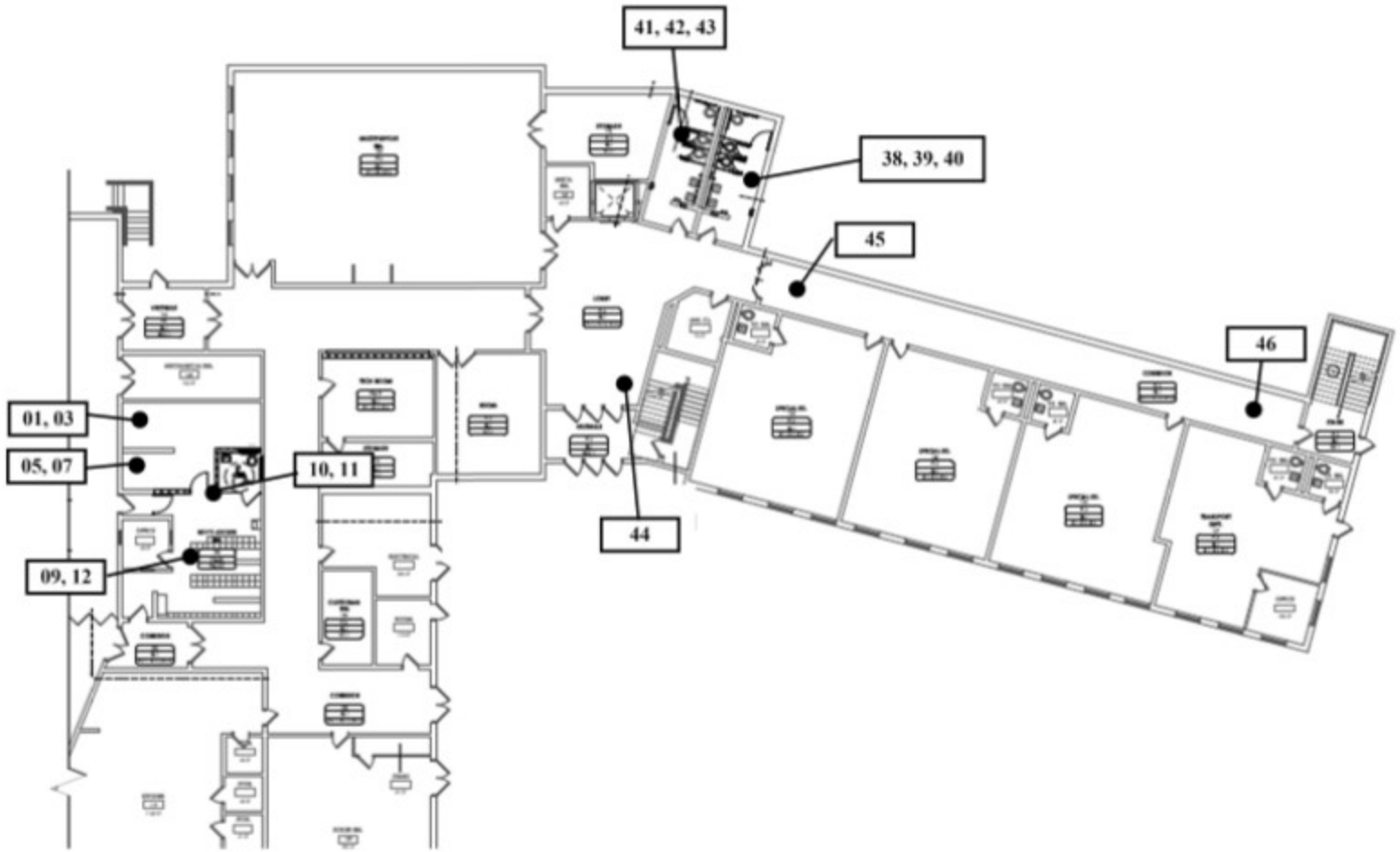
Greenwood Lake UFSD
1247 Lakes Road,
Monroe, NY 10950

PROJECT LOCATION

Greenwood Lake Middle School
1247 Lakes Road,
Monroe, NY 10950

1973 WING & GIRLS LOCKER ROOM
SAMPLE LOCATIONS

SL-04



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale

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.

Date: 1/19/2024	**Version #** 1
Issued For: Asbestos Survey	
QuES&T Project #: 23-5745	
Project Manager: TM	**Prepared By:** DS

QuES&T

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Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

Greenwood Lake UFSD
1247 Lakes Road,
Monroe, NY 10950

PROJECT LOCATION

Greenwood Lake Middle School
1247 Lakes Road,
Monroe, NY 10950

1995 WING & BOYS LOCKER ROOM
SAMPLE LOCATIONS

SL-05

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-01	5745-02	5745-03	5745-04
Layer Number					
Lab ID Number		2966132	2966133	2966134	2966135
Sample Location		First Floor, Boy's Locker Room, Shower, Wall, On Ceramic Wall Tile	First Floor, Girl's Locker Room, Shower, Wall, On Ceramic Wall Tile	First Floor, Boy's Locker Room, Shower, Wall, Behind Ceramic Wall Tile	First Floor, Girl's Locker Room, Shower, Wall, Behind Ceramic Wall Tile
Sample Description		Grout	Grout	Mortar	Mortar
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	No	No
	Fibrous	No	No	No	No
	Color	White	White	White/Gray	White/Gray
Sample Treatment		None	None	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	20.0	20.0	20.0	25.0
	% Carbonates	30.0	25.0	30.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	50.0	55.0	50.0	45.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-05	5745-06	5745-07	5745-08
Layer Number					
Lab ID Number		2966136	2966137	2966138	2966139
Sample Location		First Floor, Boy's Locker Room, Toilet, Floor	First Floor, Girl's Locker Room, Toilet, Floor	First Floor, Boy's Locker Room, Toilet, Floor, On Ceramic Floor Tile	First Floor, Girl's Locker Room, Toilet, Floor, On Ceramic Floor Tile
Sample Description		Ceramic Floor Tile	Ceramic Floor Tile	Grout	Grout
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	No	No	No	No
	Color	Brown/White	Brown/White	Gray	Gray
Sample Treatment		Homogenized	Homogenized	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	40.0	40.0	30.0	30.0
	% Carbonates	ND	ND	30.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	60.0	60.0	40.0	45.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-09	5745-10	5745-11	5745-13
Layer Number					
Lab ID Number		2966140	2966141	2966142	2966143
Sample Location		First Floor, Boy's Locker Room, On Pipe Fitting	First Floor, Boy's Locker Room, Partition Wall	First Floor, Boy's Locker Room, Partition Wall, On Sheetrock	First Floor, Girl's Locker Room, On Roof Drain
Sample Description		Mudded Joint Packing	Sheetrock	Joint Compound	Mudded Joint Packing
Method of Quantification		Point Count	Scanning Option	Point Count	Scanning Option
Appearance	Layered	Yes	Yes	No	Yes
	Homogenous	No	No	Yes	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Gray/White	Gray/Brown	Beige	Gray/Brown
Sample Treatment		Homogenized	Homogenized	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	0.8	ND	1.3	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	0.8	ND	1.3	ND
Other Fibrous Materials Present	% Fibrous Glass	25.0	ND	ND	15.0
	% Cellulose	ND	15.0	ND	10.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	ND	15.0	ND	10.0
	% Carbonates	ND	30.0	ND	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	74.2	40.0	98.7	40.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-14	5745-19	5745-20	5745-29
Layer Number					
Lab ID Number		2966144	2966145	2966146	2966147
Sample Location		First Floor, Girl's Locker Room, On Pipe Fitting	First Floor, Hall, Near Elevator, Wall, On Sheetrock	First Floor, Hall, Near Room 113, Wall, Partition	First Floor, 1973 Wing, Near Room 113, Ceiling, Suspended, 2' x 4'
Sample Description		Mudded Joint Packing	Joint Compound	Sheetrock	Mudded Joint Packing
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	Yes	Yes
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Gray/Brown	White/Gray	White/Brown	Gray/White
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	10.0	ND	5.0	15.0
	% Cellulose	15.0	ND	15.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	10.0	30.0	15.0	10.0
	% Carbonates	20.0	30.0	30.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	40.0	35.0	30.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-34	5745-35	5745-36	5745-37
Layer Number					
Lab ID Number		2966148	2966149	2966150	2966151
Sample Location		Second Floor, 1973 Wing, Hallway, Wall, Partition, On Sheetrock	Second Floor, 1973 Wing, Hallway, Wall, Partition, On Sheetrock	First Floor, 1973 Wing, Hallway, Wall, Partition, On Sheetrock	First Floor, 1973 Wing, Hallway, Wall, Partition, On Sheetrock
Sample Description		Joint Compound	Joint Compound	Joint Compound	Joint Compound
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	White	White	White	White
Sample Treatment		None	None	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	25.0	25.0	30.0	30.0
	% Carbonates	30.0	35.0	30.0	35.0
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	40.0	40.0	35.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-38	5745-39	5745-40	5745-41
Layer Number					
Lab ID Number		2966152	2966153	2966154	2966155
Sample Location		First Floor, 1995 Wing, Men's Room, Floor	First Floor, 1995 Wing, Men's Room, Floor, On Ceramic Floor Tile	First Floor, 1995 Wing, Men's Room, Floor, Under Ceramic Floor Tile	First Floor, 1995 Wing, Girl's Room, Floor
Sample Description		Ceramic Floor Tile	Grout	Mudset	Ceramic Floor Tile
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Gray	Gray/Brown	White/Brown	Gray
Sample Treatment		None	None	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	40.0	30.0	20.0	35.0
	% Carbonates	ND	25.0	35.0	ND
	% Other	ND	ND	ND	ND
	% Unidentified	60.0	45.0	45.0	65.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-42	5745-43	5745-44	5745-45
Layer Number					
Lab ID Number		2966156	2966157	2966158	2966159
Sample Location		First Floor, 1995 Wing, Girl's Room, Floor, On Ceramic Floor Tile	First Floor, 1995 Wing, Girl's Room, Floor, Under Ceramic Floor Tile	First Floor, 1995 Wing, On Metal Ceiling Deck	First Floor, 1995 Wing, On Metal Ceiling Deck
Sample Description		Grout	Mudset	Spray On Fireproofing	Spray On Fireproofing
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	No	No	No
	Fibrous	No	No	Yes	Yes
	Color	Gray/Brown	White/Brown	Gray	Gray
Sample Treatment		None	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	20.0	20.0
	% Cellulose	ND	ND	10.0	10.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	30.0	30.0	10.0	10.0
	% Carbonates	20.0	30.0	20.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	50.0	40.0	40.0	35.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/15/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-46
Layer Number		
Lab ID Number		2966160
Sample Location		First Floor, 1995 Wing, On Metal Ceiling Deck
Sample Description		Spray On Fireproofing
Method of Quantification		Scanning Option
Appearance	Layered	No
	Homogenous	No
	Fibrous	Yes
	Color	Gray
Sample Treatment		Homogenized
Asbestos Content	% Amosite	ND
	% Chrysotile	ND
	% Other	ND
	% Total Asbestos	ND
Other Fibrous Materials Present	% Fibrous Glass	25.0
	% Cellulose	10.0
	% Other	ND
	% Unidentified	ND
Non-Fibrous Materials Present	% Silicates	10.0
	% Carbonates	20.0
	% Other	ND
	% Unidentified	35.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/10/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-12	5745-15	5745-16	5745-17
Layer Number					
Lab ID Number		2964656	2964657	2964658	2964659
Sample Location		First Floor, Boy's Locker Room, Ceiling, Suspended, 2' x 2'	First Floor, Cafetorium, Floor, 12" x 12" Floor Tile, On Cementitious Slab	First Floor, Cafetorium, Floor, 12" x 12", Beige	First Floor, Cafetorium, Floor, 12" x 12", Beige
Sample Description		Ceiling Tile	Mastic	Floor Tile	Floor Tile
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	Yes	No	No	No
	Homogenous	No	Yes	Yes	Yes
	Fibrous	Yes	No	No	No
	Color	Gray/Brown	Tan	Beige	Beige
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	30.4	71.3	23.0	25.0
	% Carbonates	51.1	9.9	75.6	70.7
	% Other Inorganic	18.5	18.8	1.4	4.3

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/10/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-18	5745-21	5745-22	5745-23
Layer Number					
Lab ID Number		2964660	2964661	2964662	2964663
Sample Location		First Floor, Cafetorium, Floor, 12" x 12", Green	First Floor, 1973 Wing, Stairwell, Floor, 12" x 12", Gray	First Floor, 1973 Wing, Stairwell, Floor, 12" x 12", Gray	First Floor, 1973 Wing, Stairwell, Floor, 12" x 12" Floor Tile, On Cementitious Slab
Sample Description		Floor Tile	Floor Tile	Floor Tile	Mastic
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Green	Gray	Gray	Black/Tan
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	20.9	22.0	22.1	67.0
	% Carbonates	77.3	73.9	72.0	29.3
	% Other Inorganic	1.8	4.1	5.9	3.7

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/10/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-24	5745-25	5745-26	5745-27
Layer Number					
Lab ID Number		2964664	2964665	2964666	2964667
Sample Location		First Floor, 1973 Wing, Stairwell, Floor, 12" x 12" Floor Tile, On Cementitious Slab	First Floor, 1973 Wing, Hall Near Elevator, Wall, On Cementitious Block and Mortar	First Floor, 1973 Wing, Hall Near Elevator, Wall, On Cementitious Brick and Mortar	First Floor, 1973 Wing, Hall Near Elevator, Wall, On Cementitious Block and Mortar, 4 Inch
Sample Description		Mastic	Mastic	Mastic	Cove Base Molding
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Black/Tan	Gray/Tan	Gray/Tan	Teal
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND
Other Materials Present	% Organic	65.4	28.7	29.1	62.1
	% Carbonates	7.6	69.3	66.6	37.6
	% Other Inorganic	27.0	2.0	4.3	0.3

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/10/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5745-28	5745-30	5745-31	5745-32
Layer Number					
Lab ID Number		2964668	2964669	2964670	2964671
Sample Location		First Floor, 1973 Wing, Hall Near Elevator, Wall, On Brick and Mortar, 4 Inch	First Floor, 1974 Wing, Near Room 113, Ceiling, Suspended, 2' x 4'	First Floor, Hallway, Floor, 12" x 12", Red	Second Floor, 1973 Wing, Stairwell, 12" x 12", Tan
Sample Description		Cove Base Molding	Ceiling Tile	Floor Tile	Floor Tile
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	Yes	No	No
	Color	Black	Gray	Red	Tan
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	0.4
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND Inconclusive	ND Inconclusive	0.4 Inconclusive
Other Materials Present	% Organic	61.5	19.1	25.1	28.6
	% Carbonates	37.7	57.3	73.8	54.6
	% Other Inorganic	0.8	23.6	1.1	16.4

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/10/2023
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-33	
Layer Number			
Lab ID Number		2964672	
Sample Location		Second Floor, 1973 Wing, Stairwell, 12" x 12", Tan	
Sample Description		Floor Tile	
Analytical Method		NOB Plm	
Appearance	Layered	No	
	Homogenous	Yes	
	Fibrous	No	
	Color	Tan	
Asbestos Content	% Amosite	ND	
	% Chrysotile	0.3	
	% Other	ND	
	% Total Asbestos	0.3	Inconclusive
Other Materials Present	% Organic	24.7	
	% Carbonates	60.1	
	% Other Inorganic	14.9	

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/14/2023
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-12	5745-15	5745-16	5745-17
Layer Number					
Lab ID Number		2964656	2964657	2964658	2964659
Sample Location		First Floor, Boy's Locker Room, Ceiling, Suspended, 2' x 2'	First Floor, Cafetorium, Floor, 12" x 12" Floor Tile, On Cementitious Slab	First Floor, Cafetorium, Floor, 12" x 12", Beige	First Floor, Cafetorium, Floor, 12" x 12", Beige
Sample Description		Ceiling Tile	Mastic	Floor Tile	Floor Tile
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	Yes	No	No	No
	Homogenous	No	Yes	Yes	Yes
	Fibrous	Yes	No	No	No
	Color	Gray/Brown	Tan	Beige	Beige
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	30.4	71.3	23.0	25.0
	% Carbonates	51.1	9.9	75.6	70.7
	% Other Inorganic	18.5	18.8	1.4	4.3

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lakes MS - Pre-Construction ASB Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 11/03/2023
Collected By : T. McAfee/S. Talsma
Date Received : 11/06/2023
Date Analyzed : 11/14/2023
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-18	5745-21	5745-22	5745-23
Layer Number					
Lab ID Number		2964660	2964661	2964662	2964663
Sample Location		First Floor, Cafetorium, Floor, 12" x 12", Green	First Floor, 1973 Wing, Stairwell, Floor, 12" x 12", Gray	First Floor, 1973 Wing, Stairwell, Floor, 12" x 12", Gray	First Floor, 1973 Wing, Stairwell, Floor, 12" x 12" Floor Tile, On Cementitious Slab
Sample Description		Floor Tile	Floor Tile	Floor Tile	Mastic
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Green	Gray	Gray	Black/Tan
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	20.9	22.0	22.1	67.0
	% Carbonates	77.3	73.9	72.0	29.3
	% Other Inorganic	1.8	4.1	5.9	3.7

Eastern Analytical Services, Inc.

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Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

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Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-24	5745-25	5745-26	5745-30
Layer Number					
Lab ID Number		2964664	2964665	2964666	2964669
Sample Location		First Floor, 1973 Wing, Stairwell, Floor, 12" x 12" Floor Tile, On Cementitious Slab	First Floor, 1973 Wing, Hall Near Elevator, Wall, On Cementitious Block and Mortar	First Floor, 1973 Wing, Hall Near Elevator, Wall, On Cementitious Brick and Mortar	First Floor, 1974 Wing, Near Room 113, Ceiling, Suspended, 2' x 4'
Sample Description		Mastic	Mastic	Mastic	Ceiling Tile
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	Yes
	Color	Black/Tan	Gray/Tan	Gray/Tan	Gray
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	65.4	28.7	29.1	19.1
	% Carbonates	7.6	69.3	66.6	57.3
	% Other Inorganic	27.0	2.0	4.3	23.6

Eastern Analytical Services, Inc.

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Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

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Date Analyzed : 11/14/2023
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-31	5745-32	5745-33
Layer Number				
Lab ID Number		2964670	2964671	2964672
Sample Location		First Floor, Hallway, Floor, 12" x 12", Red	Second Floor, 1973 Wing, Stairwell, 12" x 12", Tan	Second Floor, 1973 Wing, Stairwell, 12" x 12", Tan
Sample Description		Floor Tile	Floor Tile	Floor Tile
Analytical Method		NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No
	Homogenous	Yes	Yes	Yes
	Fibrous	No	No	No
	Color	Red	Tan	Tan
Asbestos Content	% Amosite	ND	ND	ND
	% Chrysotile	ND	8.4	7.6
	% Other	ND	ND	ND
	% Total Asbestos	ND	8.4	7.6
Other Materials Present	% Organic	25.1	28.6	24.7
	% Carbonates	73.8	54.6	60.1
	% Other Inorganic	1.1	8.4	7.6

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: **CLARK PATTERSON LEE**
ADDRESS: **50 Front Street**
Newburgh, NY 12550
CONTACT: **Lauren Tarsio**

PROJECT NAME: **Greenwood Lakes MS**
ROJECT BUILDING: **Pre-Construction ASB Inspection**
'ROJECT ADDRESS: 1247 Lakes Road
Monroe, NY 10950

PROJECT # : **23-5745**
SAMPLED BY: **T. McAfee/S. Talsma**

DATE SAMPLED: **3-Nov-23**
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM/PLM-NOB/QTEM

TURN-AROUND TIME: 5 Days

Sample	HM#	Floor	Space Name/ID#	Location	Material	Results
5745-01		First	Boy's Locker Room	Shower, Wall, On Ceramic Wall Tile	Grout	
5745-02		First	Girl's Locker Room	Shower, Wall, On Ceramic Wall Tile	Grout	
5745-03		First	Boy's Locker Room	Shower, Wall, Behind Ceramic Wall Tile	Mortar	
5745-04		First	Girl's Locker Room	Shower, Wall, Behind Ceramic Wall Tile	Mortar	
5745-05		First	Boy's Locker Room	Toilet, Floor	Ceramic Floor Tile	
5745-06		First	Girl's Locker Room	Toilet, Floor	Ceramic Floor Tile	
5745-07		First	Boy's Locker Room	Toilet, Floor, On Ceramic Floor Tile	Grout	
5745-08		First	Girl's Locker Room	Toilet, Floor, On Ceramic Floor Tile	Grout	
5745-09		First	Boy's Locker Room	On Pipe Fitting	Mudded Joint Packing	
5745-10		First	Boy's Locker Room	Partition Wall	Sheetrock	
5745-11		First	Boy's Locker Room	Partition Wall, On Sheetrock	Joint Compound	
2964656 5745-12 *		First	Boy's Locker Room	Ceiling, Suspended, 2' x 2'	Ceiling Tile	
5745-13		First	Girl's Locker Room	On Roof Drain	Mudded Joint Packing	
5745-14		First	Girl's Locker Room	On Pipe Fitting	Mudded Joint Packing	
2964657 5745-15 *		First	Cafetorium	Floor, 12" x 12" Floor Tile, On Cementitious Slab	Mastic	

*

AS LABELED ON PAPERWORK
INITIAL /DATE _____ / 11/8/23

Comments: _____

SUBMITTED BY: _____ DATE: 11/6/2023

RECEIVED BY: M D WARNER NOV 6'23 20:26 DATE: _____

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: CLARK PATTERSON LEE
ADDRESS: 50 Front Street
Newburgh, NY 12550
CONTACT: Lauren Tarsio

PROJECT NAME: Greenwood Lakes MS
ROJECT BUILDING: Pre-Construction ASB Inspection
'ROJECT ADDRESS: 1247 Lakes Road
Monroe, NY 10950

PROJECT # : 23-5745
SAMPLED BY: T. McAfee/S. Talsma

DATE SAMPLED: 3-Nov-23
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM/PLM-NOB/QTEM

TURN-AROUND TIME: 5 Days

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
2964658 5745-16		First	Cafetorium	Floor, 12" x 12", Beige	Floor Tile	
2964659 5745-17		First	Cafetorium	Floor, 12" x 12", Beige	Floor Tile	
2964660 5745-18		First	Cafetorium	Floor, 12" x 12", Green	Floor Tile	
5745-19		First	Hall, Near Elevator	Wall, On Sheetrock	Joint Compound	
5745-20		First	Hall, Near Room 113	Wall, Partition	Sheetrock	
2964661 5745-21		First	1973 Wing, Stairwell	Floor, 12" x 12", Grey	Floor Tile	
2964662 5745-22		First	1973 Wing, Stairwell	Floor, 12" x 12", Grey	Floor Tile	
2964663 5745-23		First	1973 Wing, Stairwell	Floor, 12" x 12" Floor Tile, On Cementitious Slab	Mastic	
2964664 5745-24		First	1973 Wing, Stairwell	Floor, 12" x 12" Floor Tile, On Cementitious Slab	Mastic	
2964665 5745-25		First	1973 Wing, Hall Near Elevator	Wall, On Cementitious Block and Mortar	Mastic	
2964666 5745-26		First	1973 Wing, Hall Near Elevator	Wall, On Cementitious Brick and Mortar	Mastic	
2964667 5745-27		First	1973 Wing, Hall Near Elevator	Wall, On Cementitious Block and Mortar, 4 inch	Cove Base Molding	
2964668 5745-28		First	1973 Wing, Hall Near Elevator	Wall, On Brick and Mortar, 4 inch	Cove Base Molding	
5745-29		First	1973 Wing, Near Room 113	Above Suspended Ceiling, On Pipe Fitting	Mudded Joint Packing	
2964669 5745-30		First	1974 Wing, Near Room 113	Ceiling, Suspended, 2' x 4'	Ceiling Tile	

AS APPEARED ON PAPERWORK
DATE: 11/8/23

Comments:

SUBMITTED BY:

RECEIVED BY:

DATE: 11/02/2023
NOV 6'23 20:26
DATE:

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: CLARK PATTERSON LEE
ADDRESS: 50 Front Street
Newburgh, NY 12550
CONTACT: Lauren Tarsio

PROJECT NAME: Greenwood Lakes MS
ROJECT BUILDING: Pre-Construction ASB Inspection
'ROJECT ADDRESS: 1247 Lakes Road
Monroe, NY 10950

PROJECT # : 23-5745
SAMPLED BY: T. McAfee/S. Talsma

DATE SAMPLED: 3-Nov-23
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM/PLM-NOB/QTEM

TURN-AROUND TIME: 5 Days

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
2964670 5745-31		First	Hallway	Floor, 12" x 12", Red	Floor Tile	
2964671 5745-32		Second	1973 Wing, Stairwell	Floor, 12" x 12", Tan	Floor Tile	
2964672 5745-33		Second	1973 Wing, Stairwell	Floor, 12" x 12", Tan	Floor Tile	
5745-34		Second	1973 Wing, Hallway	Wall, Partition, On Sheetrock	Joint Compound	
5745-35		Second	1973 Wing, Hallway	Wall, Partition, On Sheetrock	Joint Compound	
5745-36		First	1973 Wing, Hallway	Wall, Partition, On Sheetrock	Joint Compound	
5745-37		First	1973 Wing, Hallway	Wall, Partition, On Sheetrock	Joint Compound	
5745-38		First	1995 Wing, Men's Room	Floor	Ceramic Floor Tile	
5745-39		First	1995 Wing, Men's Room	Floor, On Ceramic Floor Tile	Grout	
5745-40		First	1995 Wing, Men's Room	Floor, Under Ceramic Floor Tile	Mudset	
5745-41		First	1995 Wing, Girls Room	Floor	Ceramic Floor Tile	
5745-42		First	1995 Wing, Girls Room	Floor, On Ceramic Floor Tile	Grout	
5745-43		First	1995 Wing, Girls Room	Floor, Under Ceramic Floor Tile	Mudset	
5745-44		First	1995 Wing	On Metal Ceiling Deck	Spray On Fireproofing	
5745-45		First	1995 Wing	On Metal Ceiling Deck	Spray On Fireproofing	

AS LABELLED ON PAPERWORK
INITIAL/DATE 4/8/23

Comments:

SUBMITTED BY:

DATE 6NOV2023

RECEIVED BY: MD WARNER

NOV 6'23 DATE 09:26

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: CLARK PATTERSON LEE
ADDRESS: 50 Front Street
Newburgh, NY 12550
CONTACT: Lauren Tarsio

PROJECT NAME: Greenwood Lakes MS
ROJECT BUILDING: Pre-Construction ASB Inspection
'ROJECT ADDRESS: 1247 Lakes Road
Monroe, NY 10950

PROJECT # : 23-5745
SAMPLED BY: T. McAfee/S. Talsma

DATE SAMPLED: 3-Nov-23
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM/PLM-NOB/QTEM

TURN-AROUND TIME: 5 Days

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
5745-46		First	1995 Wing	On Metal Ceiling Deck	Spray On Fireproofing	

Comments:

SUBMITTED BY:

DATE: 6 NOV 2023

RECEIVED BY: M DWALKER

NOV 6 '23 20:26

DATE:

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5475-MS-02	5475-MS-05	5475-ES-07	5475-ES-08
Layer Number					
Lab ID Number		2976676	2976677	2976678	2976679
Sample Location		Roof 2, Field, 2nd Layer, Below Built-Up Roof	Roof 6, Field, 2nd Layer, Below Built-Up Roof	1st Floor, Girls Bathroom, Wall, On Rough Coat Plaster	1st Floor, Girls Bathroom, Ceiling, On Rough Coat Plaster
Sample Description		Perlite	Perlite	Skim Coat Plaster	Skim Coat Plaster
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	Yes	Yes
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	No	No
	Color	Brown	Brown	White/Gray	White/Gray
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	35.0	35.0	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	5.0	10.0	10.0	5.0
	% Carbonates	ND	ND	45.0	50.0
	% Other	20.0 Perlite	20.0 Perlite	ND	ND
	% Unidentified	40.0	35.0	45.0	45.0

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. ND = Not Detected. Reporting Limit is <1%.
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 Can Not Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing. Overall Lab Accuracy ± 17%. Samples received in acceptable condition unless otherwise noted.
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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Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5475-ES-09	5475-ES-10	5475-ES-11	5475-ES-12
Layer Number					
Lab ID Number		2976680	2976681	2976682	2976683
Sample Location		1st Floor, Boys Bathroom, Ceiling, On Rough Coat Plaster	1st Floor, Girls Bathroom, Wall, On Wire Lath	1st Floor, Girls Bathroom, Ceiling, On Wire Lath	1st Floor, Boys Bathroom, Ceiling, On Wire Lath
Sample Description		Skim Coat Plaster	Rough Coat Plaster	Rough Coat Plaster	Rough Coat Plaster
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	No	No	No
	Homogenous	No	No	No	No
	Fibrous	No	No	No	No
	Color	White/Gray	Gray/Brown	Gray/Brown	Gray/Brown
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	10.0	30.0	35.0	30.0
	% Carbonates	40.0	25.0	20.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	50.0	45.0	45.0	50.0

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Wappingers Falls, NY 12590

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Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5475-ES-13	5475-ES-14	5475-ES-15	5475-ES-16
Layer Number					
Lab ID Number		2976684	2976685	2976686	2976687
Sample Location		1st Floor, Girls Bathroom, Floor, Bottom Layer, Below 2nd Layer Ceramic Floor Tile	1st Floor, Boys Bathroom, Floor, Bottom Layer, Below 2nd Layer Ceramic Floor Tile	1st Floor, Girls Bathroom, Floor, On 2nd Layer Ceramic Tile	1st Floor, Boys Bathroom, Floor, On 2nd Layer Ceramic Tile
Sample Description		Mud Set	Mud Set	Grout	Grout
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	No	No	No	No
	Color	Gray	Gray	Gray	Gray
Sample Treatment		Homogenized	Homogenized	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	20.0	25.0	30.0	30.0
	% Carbonates	30.0	30.0	30.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	50.0	45.0	40.0	45.0

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Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature : 
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage  ,Lab Director

Sample ID Number		5475-ES-17	5475-ES-18	5475-ES-19	5475-ES-20
Layer Number					
Lab ID Number		2976688	2976689	2976690	2976691
Sample Location		1st Floor, Girls Bathroom, Floor, 2nd Layer Under Mud Set	1st Floor, Boys Bathroom, Floor, 2nd Layer Under Mud Set	1st Floor, Girls Bathroom, Floor, Under Top Layer Ceramic Tile	1st Floor, Boys Bathroom, Floor, Under Top Layer Ceramic Tile
Sample Description		Ceramic Floor Tile	Ceramic Floor Tile	Mud Set	Mud Set
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	No	No	No	No
	Color	Gray/White	Gray/White	Gray	Gray
Sample Treatment		Homogenized	Homogenized	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	25.0	30.0	15.0	20.0
	% Carbonates	15.0	ND	35.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	60.0	70.0	50.0	50.0

Eastern Analytical Services, Inc.

Bulk Sample Results

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Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5475-ES-21	5475-ES-22	5475-ES-23	5475-ES-24
Layer Number					
Lab ID Number		2976692	2976693	2976694	2976695
Sample Location		1st Floor, Girls Bathroom, Floor, Under Top Layer Ceramic Tile	1st Floor, Boys Bathroom, Floor, Under Top Layer Ceramic Tile	1st Floor, Girls Bathroom, Floor, Top Layer, 1" x 1"	1st Floor, Boys Bathroom, Floor, Top Layer, 1" x 1"
Sample Description		Grout	Grout	Ceramic Floor Tile	Ceramic Floor Tile
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Gray	Gray	Red	White
Sample Treatment		None	None	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	30.0	30.0	30.0	35.0
	% Carbonates	25.0	25.0	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	45.0	70.0	65.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5475-ES-25	5475-ES-26	5475-ES-27	5475-ES-28
Layer Number					
Lab ID Number		2976696	2976697	2976698	2976699
Sample Location		1st Floor, Girls Bathroom, Wall, On Ceramic Wall Tile	1st Floor, Boys Bathroom, Wall, On Ceramic Wall Tile	1st Floor, Girls Bathroom, Wall, On Plaster	1st Floor, Boys Bathroom, Wall, On Plaster
Sample Description		Grout	Grout	Ceramic Wall Tile	Ceramic Wall Tile
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	Yes	Yes
	Homogenous	Yes	Yes	No	No
	Fibrous	No	No	No	No
	Color	Tan	Tan	White/Gray	White/Gray
Sample Treatment		None	None	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	20.0	25.0	35.0	35.0
	% Carbonates	30.0	30.0	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	50.0	45.0	65.0	65.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5475-ES-31	5475-ES-32	5475-ES-33	5475-ES-34
Layer Number					
Lab ID Number		2976700	2976701	2976702	2976703
Sample Location		2nd Floor, Toilet 1, Wall, On Rough Coat Plaster	2nd Floor, Toilet 1, Wall, On Rough Coat Plaster	2nd Floor, Toilet 1, Ceiling, On Rough Coat Plaster	2nd Floor, Toilet 1, Wall, On Metal Lath
Sample Description		Skim Coat Plaster	Skim Coat Plaster	Skim Coat Plaster	Rough Coat Plaster
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	Yes	No
	Homogenous	No	No	No	No
	Fibrous	No	No	No	Yes
	Color	White/Gray	White/Gray	White/Gray	Gray/White
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	5.0 Hair
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	10.0	15.0	30.0
	% Carbonates	40.0	45.0	45.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	45.0	40.0	40.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5475-ES-35	5475-ES-36	5475-ES-37	5475-ES-38
Layer Number					
Lab ID Number		2976704	2976705	2976706	2976707
Sample Location		2nd Floor, Toilet 1, Wall, On Metal Lath	1st Floor, Toilet 1, Ceiling, On Metal Lath	1st Floor, Toilet 1, Wall, Ceramic Wall Tile to Plaster	1st Floor, Toilet 1, Wall, Ceramic Wall Tile to Plaster
Sample Description		Rough Coat Plaster	Rough Coat Plaster	Mortar	Mortar
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	Yes	Yes	No	No
	Color	Gray/White	Gray/White	White	White
Sample Treatment		Homogenized	Homogenized	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	5.0 Hair	5.0 Hair	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	30.0	25.0	20.0	20.0
	% Carbonates	25.0	30.0	30.0	35.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	40.0	50.0	45.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5475-ES-39	5475-ES-40	5475-ES-43	5475-ES-44
Layer Number					
Lab ID Number		2976708	2976709	2976710	2976711
Sample Location		1st Floor, Toilet 1, Wall, On 4" x 4" Ceramic Wall Tile	1st Floor, Toilet 1, Wall, On 4" x 4" Ceramic Wall Tile	1st Floor, Toilet 1, Floor, On Bottom Layer Tile	1st Floor, Toilet 1, Floor, On Bottom Layer Tile
Sample Description		Grout	Grout	Grout	Grout
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	White	White	Gray	Gray
Sample Treatment		None	None	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	20.0	15.0	30.0	30.0
	% Carbonates	30.0	30.0	20.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	50.0	55.0	50.0	45.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5475-ES-45	5475-ES-46	5475-ES-47	5475-ES-48
Layer Number					
Lab ID Number		2976712	2976713	2976714	2976715
Sample Location		1st Floor, Toilet 1, Floor, Bottom Layer, Green	1st Floor, Toilet 1, Floor, Bottom Layer, Green	1st Floor, Toilet 1, Floor, Under Top Layer Tile	1st Floor, Toilet 1, Floor, Under Top Layer Tile
Sample Description		Ceramic Floor Tile	Ceramic Floor Tile	Mud Set	Mud Set
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	No	No
	Fibrous	No	No	No	No
	Color	Green	Green	Gray/Brown	Gray/Brown
Sample Treatment		None	None	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	40.0	45.0	35.0	30.0
	% Carbonates	ND	ND	20.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	60.0	55.0	45.0	50.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5475-ES-49	5475-ES-50	5475-ES-51	5475-ES-52
Layer Number					
Lab ID Number		2976716	2976717	2976718	2976719
Sample Location		1st Floor, Toilet 1, Floor, On Top Layer Tile	1st Floor, Toilet 1, Floor, On Top Layer Tile	1st Floor, Toilet 1, Floor, Top Layer, 4" x 4" Gray	1st Floor, Toilet 1, Floor, Top Layer, 4" x 4" Gray
Sample Description		Grout	Grout	Ceramic Floor Tile	Ceramic Floor Tile
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	Yes	Yes
	Homogenous	Yes	Yes	No	No
	Fibrous	No	No	No	No
	Color	Gray	Gray	White/Gray	White/Gray
Sample Treatment		None	None	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	35.0	35.0	40.0	40.0
	% Carbonates	20.0	20.0	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	45.0	60.0	60.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		5475-ES-53	5475-ES-54	5475-ES-55	5475-ES-56
Layer Number					
Lab ID Number		2976720	2976721	2976722	2976723
Sample Location		1st Floor, Toilet 2, Wall, On Sheetrock	1st Floor, Toilet 2, Wall, On Sheetrock	1st Floor, Toilet 2, Wall, On Sheetrock	1st Floor, Toilet 2, Wall
Sample Description		Joint Compound	Joint Compound	Joint Compound	Sheetrock
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	Yes
	Homogenous	Yes	Yes	Yes	No
	Fibrous	No	No	No	Yes
	Color	White	White	White	Gray/Brown
Sample Treatment		None	None	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	5.0
	% Cellulose	ND	ND	ND	15.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	25.0	30.0	30.0	15.0
	% Carbonates	35.0	35.0	30.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	35.0	40.0	35.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/17/2024
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5475-ES-57	5475-ES-62	5475-ES-63
Layer Number				
Lab ID Number		2976724	2976725	2976726
Sample Location		1st Floor, Toilet 2, Wall	1st Floor, Toilet 2, Floor, On Ceramic Tile	1st Floor, Toilet 2, Floor, On Ceramic Tile
Sample Description		Sheetrock	Grout/Mudset	Grout/Mudset
Method of Quantification		Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	No	No
	Homogenous	No	Yes	Yes
	Fibrous	Yes	No	No
	Color	Gray/Brown	Gray	Gray
Sample Treatment		Homogenized	None	None
Asbestos Content	% Amosite	ND	ND	ND
	% Chrysotile	ND	ND	ND
	% Other	ND	ND	ND
	% Total Asbestos	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	5.0	ND	ND
	% Cellulose	5.0	ND	ND
	% Other	ND	ND	ND
	% Unidentified	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	35.0	40.0
	% Carbonates	30.0	20.0	20.0
	% Other	ND	ND	ND
	% Unidentified	45.0	45.0	40.0

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/14/2024
Analyzed By : Damien Warner
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab No. 101646-0 (Testing)
NVLAP Lab Code : 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-MS-01	5745-MS-03	5745-MS-04	5745-MS-06
Layer Number					
Lab ID Number		2976490	2976491	2976492	2976493
Sample Location		Roof 2, Field, Bottom Layer, Below Perlite, On Metal Deck	Roof 2, Field, Top Layer	Roof 6, Field, Bottom Layer, Below Perlite, On Metal Deck	Roof 6, Field, Top Layer
Sample Description		ISO Foam	Built-Up Roof	ISO Foam	Built-Up Roof
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	Yes	No	Yes
	Homogenous	Yes	No	Yes	No
	Fibrous	No	Yes	No	Yes
	Color	Yellow	Black/White	Yellow	Black/White
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND Inconclusive	ND	ND Inconclusive
Other Materials Present	% Organic	99.4	31.8	97.8	34.9
	% Carbonates	ND	13.1	1.3	2.6
	% Other Inorganic	0.6	55.1	0.9	62.5

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/14/2024
Analyzed By : Damien Warner
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab No. 101646-0 (Testing)
NVLAP Lab Code : 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-ES-29	5745-ES-30	5745-ES-41	5745-ES-42
Layer Number					
Lab ID Number		2976494	2976495	2976496	2976497
Sample Location		1st Floor, Girl's Bathroom, Suspended Ceiling, 2 x 4, Dot Canyon	1st Floor, Boy's Bathroom, Suspended Ceiling, 2 x 4, Dot Canyon	1st Floor, Toilet 1, Suspended Ceiling, 2 x 2 Spec	1st Floor, Toilet 1, Suspended Ceiling, 2 x 2 Spec
Sample Description		Ceiling Tile	Ceiling Tile	Ceiling Tile	Ceiling Tile
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	Yes	Yes	Yes	Yes
	Color	Gray	Gray	Beige	Beige
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	25.1	26.3	28.4	30.1
	% Carbonates	33.6	14.6	43.1	41.0
	% Other Inorganic	41.3	59.1	28.5	28.9

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/14/2024
Analyzed By : Damien Warner
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab No. 101646-0 (Testing)
NVLAP Lab Code : 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-ES-58	5745-ES-59	5745-ES-60	5745-ES-61
Layer Number					
Lab ID Number		2976498	2976499	2976500	2976501
Sample Location		1st Floor, Toilet 2, Suspended Ceiling, 2' x 2', Square Patterned	1st Floor, Toilet 2, Suspended Ceiling, 2' x 2', Square Patterned	1st Floor, Toilet 2, Wall, On Ceramic Covebase	1st Floor, Toilet 2, Wall, On Ceramic Covebase
Sample Description		Ceiling Tile	Ceiling Tile	Adhesive	Adhesive
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	Yes	Yes	No	No
	Color	Beige	Beige	Beige	Beige
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	33.2	28.9	27.4	27.6
	% Carbonates	64.7	64.5	69.4	68.9
	% Other Inorganic	2.1	6.6	3.2	3.5

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/14/2024
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-MS-03	5745-MS-06	5745-ES-29	5745-ES-30
Layer Number					
Lab ID Number		2976491	2976493	2976494	2976495
Sample Location		Roof 2, Field, Top Layer	Roof 6, Field, Top Layer	1st Floor, Girl's Bathroom, Suspended Ceiling, 2 x 4, Dot Canyon	1st Floor, Boy's Bathroom, Suspended Ceiling, 2 x 4, Dot Canyon
Sample Description		Built-Up Roof	Built-Up Roof	Ceiling Tile	Ceiling Tile
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	Yes	Yes	Yes	Yes
	Color	Black/White	Black/White	Gray	Gray
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	31.8	34.9	25.1	26.3
	% Carbonates	13.1	2.6	33.6	14.6
	% Other Inorganic	55.1	62.5	41.3	59.1

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/14/2024
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-ES-41	5745-ES-42	5745-ES-58	5745-ES-59
Layer Number					
Lab ID Number		2976496	2976497	2976498	2976499
Sample Location		1st Floor, Toilet 1, Suspended Ceiling, 2 x 2 Spec	1st Floor, Toilet 1, Suspended Ceiling, 2 x 2 Spec	1st Floor, Toilet 2, Suspended Ceiling, 2' x 2', Square Patterned	1st Floor, Toilet 2, Suspended Ceiling, 2' x 2', Square Patterned
Sample Description		Ceiling Tile	Ceiling Tile	Ceiling Tile	Ceiling Tile
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	Yes	Yes	Yes	Yes
	Color	Beige	Beige	Beige	Beige
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	28.4	30.1	33.2	28.9
	% Carbonates	43.1	41.0	64.7	64.5
	% Other Inorganic	28.5	28.9	2.1	6.6

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 23-5745 - Clark Patterson Lee - Greenwood Lake MS - Pre-Construction Asbestos Inspection - 1247 Lakes Road - Monroe, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 01/11/2024
Collected By : T. McAfee/D. Stamper
Date Received : 01/12/2024
Date Analyzed : 01/14/2024
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		5745-ES-60	5745-ES-61
Layer Number			
Lab ID Number		2976500	2976501
Sample Location		1st Floor, Toilet 2, Wall, On Ceramic Covebase	1st Floor, Toilet 2, Wall, On Ceramic Covebase
Sample Description		Adhesive	Adhesive
Analytical Method		NOB Tem	NOB Tem
Appearance	Layered	No	No
	Homogenous	Yes	Yes
	Fibrous	No	No
	Color	Beige	Beige
Asbestos Content	% Amosite	ND	ND
	% Chrysotile	ND	ND
	% Other	ND	ND
	% Total Asbestos	ND	ND
Other Materials Present	% Organic	27.4	27.6
	% Carbonates	69.4	68.9
	% Other Inorganic	3.2	3.5

Appendix C:

PERSONNEL LICENSES & CERTIFICATIONS

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DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

ASBESTOS HANDLING LICENSE

Quality Environmental Solutions & Technologies, Inc.
1376 Route 9, Wappinger Falls, NY, 12590

License Number: 29085
License Class: RESTRICTED
Date of Issue: 12/29/2023
Expiration Date: 01/31/2025
Duly Authorized Representative: Lawrence J Holzapfel

This license has been issued in accordance with applicable 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 asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos 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.

Amy Phillips, Director
For the Commissioner of Labor

EXCELSIOR

SH 432 (12/21)

NEW YORK STATE

MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISE ("MWBE")

CERTIFICATION

Empire State Development's Division of Minority and Women's Business Development grants a

Women Business Enterprise (WBE)

pursuant to New York State Executive Law, Article 15-A to:

Quality Environmental Solutions & Technologies Inc.

Certification Awarded on: March 28, 2019
Expiration Date: March 28, 2024
File ID#: WBE- 49952

NEW YORK STATE OF OPPORTUNITY. | Division of Minority and Women's Business Development

A Division of Empire State Development

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2024
Issued April 01, 2022
Revised March 30, 2023

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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

MR. PAUL STASCAVAGE
EAS INC - EASTERN ANALYTICAL SERVICES INC
4 WESTCHESTER PLAZA
ELMSFORD, NY 10523-1610

NY Lab Id No: 10851

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:

Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual
	EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Asbestos-Vermiculite-Containing Mate	Item 198.8 of Manual
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

Sample Preparation Methods

	EPA 3050B

Serial No.: 66205

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

N.Y.S

SHANNON D TALSMA
CLASS(EXPIRES)
C ATEC (10/24) D INSP (10/24)
H PM (10/24)

CERT# 23-61PEC-SHAB
DMV# 963348232

MUST BE CARRIED ON ASBESTOS PROJECTS

IF FOUND, RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12226

01213 0070132B1 61

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

N.Y.S

DILLON T STAMPER
CLASS(EXPIRES)
D INSP (12/24) H PM (12/23)
C ATEC (12/23)

CERT# 23-6LUH4-SHAB
DMV# 190870975

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STATE OFFICE CAMPUS
ALBANY NY 12226

01213 0070018200 19

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

N.Y.S

TODD MCAFEE
CLASS(EXPIRES)
C ATEC (12/24) D INSP (12/24)
E MGPL (12/24) H PM (12/24)
I PD (12/24)

CERT# 23-6LUAF-SHAB
DMV# 238089839

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ALBANY NY 12226

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SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete reinforcement.

D. Joint devices associated with concrete work.

E. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks, and manholes.

F. Concrete curing.

G. Concrete repair materials.

1.02 RELATED REQUIREMENTS

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

B. 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 A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.

M. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.

N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2020.

O. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2020.

P. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2020a.

Q. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015a.

R. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2016.

S. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 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 C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 2020.

W. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019.

X. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2019.

Y. ASTM C827/C827M - Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures; 2016.

Z. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2015.

AA. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.

BB. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2017.

CC. ASTM C1202 - Standard Test Method for Electrical Indication of Concrete’s Ability to Resist Chloride Ion Penetration; 2019.

DD. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.

EE. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; 2019.

FF. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2012.

GG. ASTM C1708/C1708M - Standard Test Methods for Self-leveling Mortars Containing Hydraulic Cements; 2019.

HH. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2018.

II. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018.

JJ. ASTM D8139 - Standard Specification for Semi-Rigid, Closed-Cell Polypropylene Foam, Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction; 2017.

KK. 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.

LL. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, 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.

F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

G. Reinforcement Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices

H. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

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.

D. For slabs required to include moisture vapor reducing admixture (MVRA), do not proceed with placement unless manufacturer's representative is present for every day of placement.

1.06 WARRANTY

A. Slabs with Moisture Vapor Reducing Admixture (MVRA): Provide warranty to cover cost of flooring failures due to moisture migration from slabs for life of the concrete.
   1. Include cost of repair or removal of failed flooring, placement of topical moisture remediation system, and replacement of flooring with comparable flooring system.
   2. Provide warranty by admixture manufacturer matching terms of flooring adhesive or primer manufacturer's material defect warranty.

B. Moisture Emission-Reducing Curing and Sealing Compound, Penetrating: Provide non-prorated warranty to cover cost of flooring delamination failures for 20 years.
   1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

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 (38 mm) of concrete surface.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).

B. Steel Welded Wire Reinforcement (WWR): Plain type, ASTM A1064/A1064M.
   1. Form: Flat Sheets.
   2. WWR Style: As noted on drawings.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).
   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. General: Concrete supplier(s) permitted to select and use chemical admixtures indicated in this Section in concrete mix designs to enhance the placement, workability, and other characteristics of the wet concrete properties. Concrete supplier(s) shall review project schedule and coordinate the use of accelerators, retarders, etc. as necessary to facilitate concrete placement in accordance with Hot Weather and/or Cold Weather concreting practice guidelines. Concrete contractor shall also review compatability of all admixtures selected for use in each individual mix design submitted.

B. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

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. Moisture Vapor Reducing Admixture (MVRA): Liquid, inorganic admixture free of volatile organic compounds (VOCs). Closes capillary systems formed during concrete curing to reduce moisture vapor emission and transmission. Reduces concrete shrinkage with no adverse effect on concrete properties or applied flooring.
   1. Provide admixture in slabs to receive adhesively applied flooring or roofing.
   2. Products:
      a. Barrier One, Inc; Barrier One Moisture Vapor Reduction Admixture (MVRA-CPS): www.barrierone.com/#sle.
      b. Hycrete, Inc: www.hycrete.com/#sle.
      c. ISE Logik Industries, Inc; MVRA 900: www.iselogik.com/#sle.
      d. Specialty Products Group; Vapor Lock 20/20: www.spggogreen.com/#sle.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder:
   1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
   2. Products:
      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, LLC10-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 (48 MPa).

C. Architectural Concrete Floor Topping and Resurfacer:
   1. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 6,000 pounds per square inch (41 MPa).
   2. Compressive Strength: Minimum 5000 pounds per square inch (34.5 MPa), tested per ASTM C472.

D. Self-Leveling Cementitious Concrete Floor Topping:
   1. Minimum Compressive Strength at 28 Days, ASTM C1708/C1708M: 7,000 pounds per square inch (48 MPa).
   2. Products:
      a. LATICRETE International, Inc; LATICRETE SUPERCAP SC650-MC: www.laticrete.com/#sle.

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
   1. Products:

a. Euclid Chemical Company; AKKRO-7T: www.euclidchemical.com/#sle.
b. Kaufman Products Inc; SureBond: www.kaufmanproducts.net/#sle.
c. Kaufman Products Inc; SureWeld: www.kaufmanproducts.net/#sle.
d. SpecChem, LLC; Strong Bond Acrylic Bonder: www.specchemllc.com/#sle.
e. W. R. Meadows, Inc; ACRY-LOK-: www.wrmeadows.com/#sle.

B. Epoxy Bonding System:
1. Complying with ASTM C881/C881M and of Type required for specific application.
2. Products:
a. Adhesives Technology Corporation; Crackbond SLV-302, Crackbond LR-321, Crackbond LR-321 LPL, Ultrabond 2100 LPL, Ultrabond 2100, Ultrabond 1, Ultrabond 2, or Ultrabond HS200: www.atcepoxy.com/#sle.
b. Euclid Chemical Company; DURAL FAST SET LV: www.euclidchemical.com/#sle.
c. Euclid Chemical Company; DURALFLEX GEL: www.euclidchemical.com/#sle.
d. Euclid Chemical Company; DURALFLEX LV: www.euclidchemical.com/#sle.
e. Euclid Chemical Company; DURAL 452 GEL, DURAL 452 LV, or DURAL 452 MV: www.euclidchemical.com/#sle.
f. SpecChem, LLC; SpecPoxy 1000, SpecPoxy 2000, SpecPoxy 3000, or SpecPoxy 3000FS: www.specchemllc.com/#sle.
g. W. R. Meadows, Inc; Rezi-Weld Gel Paste, Rezi-Weld Gel Paste State, Rezi-Weld 1000: www.wrmeadows.com/#sle.

C. Reglets: Formed steel sheet, galvanized, with temporary filler to prevent concrete intrusion during placement.

D. Slab Isolation Joint Filler: 1/2 inch (13 mm) thick, height equal to slab thickness, with removable top section that will form 1/2 inch (13 mm) deep sealant pocket after removal.
1. Material: ASTM D1751, cellulose fiber.
2. Material: ASTM D1752, sponge rubber (Type I).
3. Material: ASTM D8139, semi-rigid, closed-cell polypropylene foam.
4. Material: Closed-cell, non-absorbent, compressible polymer foam in sheet form.
5. Products:
a. Nomaco, Inc; Nomaflex Expansion Joint Filler with Void Cap Option: www.nomaco.com/#sle.
b. Nomaco, Inc; Fastflex Slab Isolation Joint Filler with Tear-Off Strip: www.nomaco.com/#sle.
c. W. R. Meadows, Inc; Fiber Expansion Joint Filler with Snap-Cap: www.wrmeadows.com/#sle.

E. Slab Contraction Joint Device: Preformed linear strip intended for pressing into wet concrete to provide straight route for shrinkage cracking.

F. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches (150 mm) on center; ribbed steel stakes for setting.

G. Dowel Sleeves: Plastic sleeve for smooth, round, steel load-transfer dowels.

H. Plate Dowel System: Steel plate dowel and plastic dowel sleeve; with integral fasteners for attachment to formwork.

2.07 CURING MATERIALS

A. Curing and Sealing Compound, Moisture Emission-Reducing, Penetrating: Clear, water-based, non-film-forming curing agent; 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 28-day water cure when tested according to ASTM C39/C39M.
   3. Chloride Ion Resistance of Treated Concrete: Equal to or greater than strength after 28-day water cure when tested according to ASTM C1202.
   4. Comply with ASTM C309 and ASTM C1315 Type I Class A.
   5. VOC Content: Zero.

B. Curing Compound, Non-dissipating: Liquid, membrane-forming, clear, non-yellowing acrylic; complying with ASTM C309.
   1. Vehicle: Water-based.
   2. Gloss: Low.
   3. Solids by Mass: 15 percent, minimum.

C. Curing and Sealing Compound, Low Gloss: Liquid, membrane-forming, clear, non-yellowing acrylic; complying with ASTM C1315 Type 1 Class A.
   1. Vehicle: Water-based.
   2. Solids by Mass: 25 percent, minimum.
   3. VOC Content: OTC compliant.

D. Moisture-Retaining Sheet: ASTM C171.
   1. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch (0.102 mm).

2.08 FLOOR AND SLAB TREATMENTS

A. Concrete Slab Sealer: ASTM C309 and C1315.
   1. Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components.
   2. Odorless; colorless.
   3. Formulated to penetrate, harden, and densify concrete surfaces.
   4. Formulated to reduce water vapor and alkali migration detrimental to adhesion of applied sheet or tile floor finishes.
   5. Products:
      a. Burke by Edoco; Titan Hard.
      b. ChemMasters; Chemisil Plus.
      c. ChemTec International; ChemTec One.
      d. Concrete Waterproofing Products, Inc.; Creteseal CS2000.
      e. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Intraseal.
      f. Euclid Chemical Company (The); Euco Diamond Hard.
      g. Meadows, W. R., Inc.; Liqui-Hard.Symons Corporation, a Dayton Superior Company; Buff Hard.
      h. Symons Corporation, a Dayton Superior Company; Buff Hard.

2.09 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
   1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
   2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
   3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
   4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
   1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
   2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
   3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
   4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.10 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.
   1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

D. Normal Weight Concrete: Slab-on-Grade (interior). (Exposure Category F0)
   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 590 pounds per cubic yard.
   4. Water-Cement Ratio: Maximum 45 percent by weight.
   5. Total Air Content: 2 percent (+/- one percent), determined in accordance with ASTM C173/C173M.
   6. Maximum Slump: 3 1/2 inches (+/- one inch.)
   7. Maximum Aggregate Size: 3/4 inch (19 mm).

E. Controlled Low Strength Material (CLSM)
   1. Permanent Material.
      a. Material shall meet the requirements of ACI 229R with a minimum compressive strength of 400 lb./sq. in

2. Removable Material.
   a. Material shall meet the requirements of ACI 229R with a minimum compressive strength of 50 to 100 lb./sq. in.

2.11 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.

C. Do not use shrinkage-reducing admixture (SRA) in same concrete batch with MVRA or PIA.

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. 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.

C. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches (150 mm). Run vapor retarder up the face of foundation walls at slab perimeter and adhere with manufacturer's recommended adhesive. 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.

B. Install welded wire reinforcement in maximum possible lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Splice laps with tie wire.

C. 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.

D. 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 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. 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.

C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

E. 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.

F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 JOINTING

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness or a minimum of 1-inch as follows:
   1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
   2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
   3. Spacing of joints shall not exceed 30 times (24 times for exposed concrete floor surface) the thickness of the slab nor 15 feet on center. All panels should be square or nearly so. Joints shall typically isolate columns and run between columns, with intermediate joints located at equal spaces between column lines.
   4. Joints produced using conventional processes shall be made within 4 or 12 hours after the slab in that area has been finished- within 4 hours in hot weather and within 12 hours in cold weather.
   5. Joints produced using early-entry dry-cut saws shall be made within 1 or 4 hours after the slab in that area has been finished- within 1 hour in hot weather and within 4 hours in cold weather.
   6. Hand tooled joints shall be done immediately following edging, or at the same time.
   7. For floors to be covered with quarry tile, ceramic tile, or terrazzo, the joints shall be aligned with joints in the rigid floor coverings.

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 (5 mm) thick blade and cut at least 1 inch (25 mm) deep but not less than one quarter (1/4) the depth of the slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Maximum Variation of Surface Flatness:
   1. Exposed Concrete Floors: 1/8 inch (3 mm) in 10 feet (3 m).
   2. Under Seamless Resilient Flooring: 1/16 inch in 10 feet (3 m).
   3. Under Carpeting: 1/8 inch (3 mm) in 10 feet (3 m).

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.

3.07 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 (6 mm) 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.

D. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.08 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.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - BSD 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 50 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.

G. Slab Testing: Cooperate with manufacturer of specified moisture vapor reducing admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

3.10 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.

3.11 PROTECTION

A. Do not permit wheeled traffic over unprotected concrete floor surface for first seven days after pour and not until concrete has attained a minimum compressive strength of 3500 psi.

END OF SECTION 033000

SECTION 033001

TANK SLAB CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included

1. All labor, materials, services and equipment necessary for furnishing and installing all cast-in-place concrete required for the completion of the work.

B. Related Work Specified Elsewhere

1. Structural Excavation, Backfill and Compaction.
2. Trenching, Backfilling and Compacting.
3. Concrete Formwork.
4. Concrete Reinforcement.
5. Joints for Concrete.

1.02 SUBMITTALS

A. Test results for aggregates, water and field tests.

B. Mill test certificates and test reports for cement indicating compliance with these specifications.

C. Concrete mix designs for all classes and types of concrete to be used in the work.

D. Proposed methods of concrete curing.

E. Manufacturers' literature for admixtures, curing compounds, sealers, surface hardeners, etc.

F. Name and location of concrete supplier.

1.03 REFERENCES

A. American Concrete Institute (ACI). The following codes, standards and recommendations are intended to specify minimum standards of performance:

1.	ACI 211.1	Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete
2.	ACI 214	Recommended Practice for Evaluation of Strength Test Results of Concrete
3.	ACI 301	Specifications for Structural Concrete for Buildings
4.	ACI 302	Guide for Concrete Floor and Slab Construction
5.	ACI 304	Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
6.	ACI 305	Hot Weather Concreting
7.	ACI 306	Cold Weather Concreting
8.	ACI 309	Standard Practice for Consolidation of Concrete
9.	ACI 350	Concrete Sanitary Engineering Structures

B. American Society for Testing and Materials (ASTM). The following ASTM specifications are referred to in these specifications and are to be considered a part of these specifications:

1.	C31	Standard Method of Making and Curing Concrete Test Specimens in the Field
2.	C33	Standard Specification for Concrete Aggregates
3.	C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
4.	C94	Standard Specification for Ready-Mixed Concrete
5.	C143	Standard Test Method for Slump of Portland Cement Concrete
6.	C150	Standard Specification for Portland Cement
7.	C171	Specification for Sheet Materials for Curing Concrete

8. C173 Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method

9. C231 Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

10. C260 Standard Specification for Air-Entraining Admixtures for Concrete

11. C494 Standard Specification for Chemical Admixtures for Concrete

1.04 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301 Specification of Structural Concrete for Buildings.

B. American Association of State Highway and Transportation Officials (AASHTO).

C. Standard specifications, New York State Department of Transportation (NYSDOT).

D. In each case the latest revision shall apply.

1.05 SOURCE QUALITY CONTROL

A. Portland Cement - Mill test certificates identifying chemical and physical analysis.

B. Aggregates - Perform tests by an approved independent testing laboratory, prior to use, to show compliance with these specifications:

1. Such tests which have been made within six months prior to the use of the aggregates will be acceptable.
2. Gradation tests shall be performed at the point of use.
3. The source of the material shall not be changed without retesting.
4. All aggregates shall be tested for compliance with the specifications at a minimum of one year intervals during the course of the work.
5. Coarse aggregates shall be obtained from a NYSDOT approved operating source.

1.06 TESTS AND INSPECTIONS

A. All required field and laboratory tests shall be at the Contractor's expense. Should any additional tests be necessary due to inadequate test results (i.e., core testing, load testing, etc.), the Contractor shall also be responsible for the cost. The contractor shall use only an approved commercial testing laboratory.

B. The Contractor shall provide facilities necessary to obtain and handle representative samples of materials to be tested and shall furnish all necessary cooperation and assistance as requested by the Engineer. The Contractor shall provide sufficient notification to the testing laboratory and shall plan and schedule his operations to allow adequate time for all required testing and inspection.

C. The testing laboratory shall be responsible to the Engineer for the field control of all concrete and may reject batches for high slump, uncontrolled air entrainment or delays. Written reports shall be issued immediately after the testing is complete. However, if at any time the results are questionable, the Engineer shall be notified immediately so that corrective steps may be taken. All tests and reports submitted for review shall be only for those specific items used in the work. One copy of the test reports shall be submitted directly to the Engineer by the testing laboratory for review.

D. The criteria for the acceptance of concrete shall be as detailed in ACI 318, Chapter 4, and include the following tests:

1. Concrete Test Cylinders
    a. During the progress of the work, a set of six 6" x 12" cylinders shall be made for each 50 cubic yards of concrete placed, or fraction thereof, of each class of concrete placed each day. These cylinders shall be made up and cured in accordance with ASTM C31 and shall be tested in accordance with ASTM C39. The following schedule shall be used in the testing procedure:
        i. Two shall be tested at seven days.
        ii. Two shall be tested at twenty-eight days.
        iii. The remaining two shall be tested at forty days or as directed by the Engineer.
    b. The making, pick-up and curing of the cylinders shall be the responsibility of the testing laboratory, but the Contractor shall cooperate in protecting the cylinders and in notifying the testing lab of scheduled pours.

c. The report shall indicate the mix proportions, air content, water content, slump, batching time, placing time and a detailed description where the tested concrete was placed in the structure. All items shall be completely filled in on each test report.

2. Slump Tests
   a. Slump tests shall be made of each batch and/or as frequently as directed. Tests shall be made in accordance with the requirements of ASTM C143.
3. Air Content Tests
   a. Air content tests shall be made each time slump tests are taken of concrete required to be air entrained. Tests shall be made in accordance with ASTM C173 (Volumetric Method) or ASTM C231 (Pressure Method).
4. Portland Cement
   a. Cement stored at the job site or in storage at the concrete suppliers plant for over 60 days shall be subjected to complete tests to determine compliance with ASTM C150.
5. Fine Aggregate
   a. Tests shall be performed as outlined in the ASTM Specification C33, "Methods of Sampling and Testing". Soundness of the aggregate shall conform to the following:
      i. Sodium Sulfate: Maximum 7 percent loss
      ii. Magnesium Sulfate: Maximum 15 percent loss
   b. Organic impurities shall not be allowed. Sand exhibiting a color darker than the referenced color shall be rejected.
6. Coarse Aggregate
   a. Tests shall be in accordance with ASTM C33 and as required by NYSDOT Specification 703.02.
7. Water
   a. Questionable sources of water, as determined by the Engineer, shall be tested in accordance with AASHTO T26 and ACI 301.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

A. Cement

1. Conform to ASTM C150 Type II.
2. Tricalcium aluminate (C_3A) shall be limited to a maximum of 7 percent. Use only approved brands without change for the entire project.

3. Cement used throughout the entire project shall be uniform in color so as not to detract from the appearance of the exposed concrete.

B. Fine Aggregates

1. Natural sand in conformance with ASTM C33.

C. Coarse Aggregates

1. Crushed gravel or crushed stone meeting the requirements of ASTM C33 and NYSDOT specification 703.02. Gradation shall conform to the Table 703-4 of the NYSDOT specification with the maximum size aggregate for various types of work as follows:
2. Floor Toppings
   a. For bond beam fill, use No. 1A size with not more than 10 percent passing a #4 sieve.
3. Use No. 1 size for:
   a. slabs less than 7 inches in depth;
   b. beams, girders and columns less that 12 inches in width; and
   c. concrete piles and other structural concrete where restrictions within concrete are 2 inches or less.
4. General work having a cross-sectional dimension of 12 inches or greater, use a mixture of No. 1 size and No. 2 size conforming to the following gradation:

Primary Size	Percent Passing
12"	100
1"	90-100
:"	60-90
2"	22-50
3"	0-6

D. Water

1. Mixing water shall be clear and free from deleterious amounts of oil, acid, alkali, organic matter, and other substances. Water from an unpotable water source must be approved by the Engineer prior to use.

E. Fly Ash (Pozzolans): ASTM C 618, including Table 1A (except for footnote A), Class F except that loss on ignition shall not exceed 5.0 percent.

F. Monofilament Fibrous Concrete Reinforcement: ASTM C 1116 and ASTM C 1018, 100 percent virgin, homopolymer polypropylene fibers specifically manufactured for use as concrete reinforcement.
   1. Monfilament Fiber.
   2. Fiber Length: 1/2 or 3/4 inch.
   3. Specific Gravity: 0.9.

2.02 ADMIXTURES

A. Calcium chloride or admixtures containing more that .1 percent chloride ions are not permitted. Written conformance of the chloride ion content will be required from the admixture manufacturer prior to mix design review.

   1. Water Reducing Admixture
      a. The admixture shall conform to ASTM C494, Type A, and shall not contain more chloride ions than are present in municipal drinking water. The following are approved:
         i. "EUCON WR-75" by the Euclid Chemical Company
         ii. "Pozzolith 200N" by Master Builders
         iii. "Plastocrete 160" by the Sika Chemical Company
   2. High Range Water Reducing Admixture (Superplasticizer)
      a. The admixture shall conform to ASTM C494, Type F or G and shall not contain more chloride ions than are present in municipal drinking water. The following are approved:
         i. "EUCON 37" by the Euclid Chemical Company
         ii. "Sikament" by the Sika Chemical Company
   3. Retarding Water Reducing Admixture
      a. The admixture shall conform to ASTM C494, Type D, and shall not contain more chloride ions than are present in municipal drinking water. The following are approved:
         i. "EUCON Retarder 75" by the Euclid Chemical Company
         ii. "Datatard HC" by W.R. Grace
         iii. "Plastiment" by the Sika Chemical Company
   4. Non-chloride Accelerator
      a. The admixture shall conform to ASTM C494, Type C or E, and shall not contain more chloride ions than are present in the municipal drinking water. The following are approved:
         i. "Accelguard 80" by the Euclid Chemical Company
         ii. "Darex Set Accelerator" by W.R. Grace

5. Air Entraining Admixture
   a. The admixture shall conform to ASTM C260. The following are approved:
      i. "Air Mix" by the Euclid Chemical Company
      ii. "Darex-AEA" by W.R. Grace
      iii. "MBVR" by Master Builders
6. Bonding Admixture
   a. Theadmixture shall be for use with the bonding grout or patching mortar. The following are approved:
      i. "SBR LATEX" by the Euclid Chemical Company
      ii. "ACRYL-60" by Standard Drywall Products, Inc.

2.03 CURING AND SEALING MATERIALS

A. Curing and Sealing Compounds

1. The compounds shall conform to federal specification TT-C-800A and shall have a 30 percent minimum solids content.
2. The compound shall be of the styrene butadiene type.
3. Test data from an independent laboratory shall be submitted indicating a maximum moisture loss of .03 grams per square centimeter when applied at a coverage rate of 300 square feet per gallon.
4. Manufacturer's certification is required for approval.
5. The following are approved:
   a. "Super Floor Coat" or "Super Plicoure" by the Euclid Chemical Company
   b. "Master Seal" or "Master Seal 66" by Master Builders

B. Waterproofing Paper

1. The curing paper shall conform to ASTM C171.

2.04 ACCESSORIES

A. Bonding Compound
1. The compound shall be of the polyvinyl acetate, rewettable type. The following are approved:
   a. "Euco Weld" by the Euclid Chemical Company
   b. "Sikadur Hi-Mod" by the Sika Chemical Company

B. Embedded Items
1. Dovetail Anchor Slots shall be 24 gauge galvanized with removable filler. The following are approved:
   a. #305 by Hohmann & Barnard

b. #100 by Cleveland Steel Specialty Company
c. "Bee-Hive" by Gateway Erectors, Inc.
d. Or Equal

C. Miscellaneous Items:
1. Mastic Material
a. For use in leveling concrete slabs. Mastic material shall be of the latex type. The following are approved:
i. "S-180 Underlayment Cement" by Armstrong Cork Company
ii. "Levelite-Latex" by Selby-Battersby & Company
iii. Or Equal
b. Depressions between high spots of the concrete slab shall not be greater than $^{3}/_{16}$-inch under a 10 foot straight edge nor more than $^{1}/_{16}$-inch within any 1 foot distance.
c. All variations above this tolerance shall not receive leveling cement but shall be ground level.

2. Compression Seals
a. Compression seals shall be of neoprene conforming to ASTM D2628.
b. The seals shall be furnished in continuous lengths and installed according to manufacturer's recommendations.
c. At the time of installation, the seal shall be compressed to 65 percent of its original width.

3. Neoprene Bearing Pads
a. Pads shall conform to the provisions of AASHTO standard specifications for highway bridges. The following elastomeric bearing pad manufacturers are approved:
i. W.R. Grace & Company
ii. Kirkhill Rubber Company
iii. Or Equal

2.05 CONCRETE MIX DESIGN

A. All mix designs shall be proportioned in accordance with Section 4.3 (Field Experience) or Section 4.4 (Trial Batches) of ACI 318-83. If trial batches are used, they shall be established by an approved commercial testing laboratory employed by the Contractor.

B. The proposed mix design shall be designed to achieve an average strength 1200 psi higher than the specified strength listed in the concrete class table below.

C. Mix design submittals shall indicate the amounts of all ingredients including cement, admixtures and the weight of the aggregates stated in a saturated surface dry condition.

D. The various classes of concrete shall be designated as follows:

		Maximum Water to Cement Ratio (W/C) By Weight	
Class	28 Day Compressive Strength	Non-Air Entrained	Air Entrained
A	5000 psi	.45	.35
B	4000 psi	.55	.45
C	3000 psi	.68	.58
D	2500 psi	.74	.64
E	2000 psi	----	----

E. In addition to the requirements above, these specific requirements shall be considered in the mix design:

1. Concrete required to be watertight or concrete exposed to de-icers shall have a maximum water to cement ratio (W/C) of .45.
2. All concrete slabs less than 8 inches in thickness, when placed in temperatures below 501F, shall contain the specified non-chloride accelerator.
3. All concrete shall contain an approved water reducing admixture or an approved high range water reducing admixture (superplasticizer).
4. All pumped concrete, watertight concrete and concrete with a water to cement ratio below .50 shall contain the high range water reducing admixture.

5. Cement contents shall be chosen to provide the minimum strengths for each class as shown in the Concrete Class Table above. The amount of cement content, however, shall not be less than the following:
   a. Class "B" - 550 pounds per cubic yard
   b. Class "C" - 470 pounds per cubic yard
   c. Class "B" Toppings - 600 pounds per cubic yard
6. Unless otherwise specified, all concrete shall be Class "B" watertight.
7. All concrete exposed to weather, or water, or subject to freezing shall be air-entrained with an approved entraining admixture.

8. Fly ash may be substituted for (Portland) cement in normal weight concrete up to a maximum of 15 percent by weight of the required minimum (Portland) cement. If fly ash is incorporated in a concrete design mix, make necessary adjustments to the design mix to compensate for the use of fly ash as a partial replacement for (Portland) cement.

    a. Adjustments shall include the required increase in air-entraining admixture to provide the specified air content.
    b. Lower early strength of the concrete shall be considered in deciding when to remove formwork.

9. Amount of Fibers: One to 1.5 pounds of fibrous concrete reinforcement per cubic yard of concrete as recommended by the approved fiber manufacturer.

F. Slump

1. All concrete containing the high range water reducing admixture (superplasticizer) shall have a maximum slump of 8 inches unless otherwise directed by the Engineer. Prior to the addition of the superplasticizer, the concrete shall be tested at the job site and a slump of 2 inches to 3 inches shall be verified. The plasticizer may then be added to increase the slump to the approved level.
2. All concrete not containing a high range water reducing admixture (superplasticizer) shall conform to these maximum slump values:

Reinforced concrete-general	4"
Non-reinforced concrete	3"
Pavements, sidewalks	3"
Heavy mass concrete	3"
Slabs on grade	3"
Floor toppings	2"

These values listed are specified as the "working limit." The average slump values shall be less than the "working limit."

3. Tolerances shall be as per ASTM C94 except that the plus tolerance shall be limited to the "working limit." A deviation of 1 inch shall be allowed for such occasional batches of concrete that may inadvertently exceed the "working limit." Batches of concrete with slumps exceeding the "working limit" will be rejected if the Contractor fails to comply promptly with the Engineers' instructions to reduce the slump of the concrete within the "working limit." The Contractor shall not increase mixing time, add dry materials or otherwise modify a rejected batch for the purpose of conforming to slump limits.

4. Concrete that has been rejected for failure to meet the slump limits shall not be salvaged for use in the work.
5. Concrete containing the high range water reducing admixture (superplasticizer) may be given additional superplasticizer only when approved by the Engineer. If a time delay has occurred wherein the slump has decreased to a level that is significantly below the maximum approved level, additional admixture may be added to increase the slump to the maximum level.

G. Air Content

1. Air content for air entrained concrete shall be controlled within the following limits:

General Work	4% to 7%
Concrete exposed to frost	4.5% to 7.5%
Concrete exposed to salt	4.5% to 7.5%
Concrete with maximum ^{3}/4-inch aggregate	4.5% to 7.5%
Finished trowel surfaces	3%
Mats	3%
Footings	3%
Substructure slab	3%

H. Rate of Hardening

1. Concrete mixes shall be designed to produce the following rates of hardening:
   a. General concrete with the following ambient temperatures:

      501-851F - normal rate of hardening
      801F - retarded rate of hardening
      501F - accelerated rate of hardening

   b. Mass concreting with the following ambient temperature:

      401F - retarded rate of hardening

2. Should the Contractor feel it advantageous to use modified rates of hardening to improve workmanship or facilitate his work, consideration will be given by the Engineer.

I. Mixing Water Control

1. The quantity of mixing water used in the concrete mix shall be determined by the Contractor with the amount used conforming to the various limits on specified slump. However, if the slump of the concrete should exceed the maximum specified slump, the Engineer will direct the Contractor to reduce the quantity of mixing water. Concrete consistency shall be uniform from batch to batch.
2. If deemed necessary by the Engineer during the course of the work, moisture determinations of the aggregates shall be made and aggregate weights and water requirements adjusted accordingly.
3. When concrete is transported in units approved for mixing, the addition of not more than 10 percent of the total design water will be permitted at the job site to obtain the specified initial slump.
   a. Any addition of water shall be followed by at least 30 revolutions in the mixing speed range.
   b. Not more than two additions of water will be allowed at the point of deposition before discharge.
   c. No retempering, defined as the addition of water after the mix has obtained is specified initial set, will be permitted.

J. Batching and Mixing

1. Batching
   a. The Contractor shall have at his disposal a modern and dependable batch plant within a reasonable distance from the work.
   b. The batch plant shall conform to the requirements of the NYSDOT specifications for automatic proportioning equipment as specified herein, and shall be approved by the State of New York.
   c. The batching and mixing shall conform to ACI 304 and to the NYSDOT specification 501-3.03.
   d. The batching shall be done only with materials previously approved by the Engineer.
2. Mixing Transporting and Discharging
   a. Conform to ASTM C94 and to the NYSDOT specification 501-0.04.
   b. Wastewater must be discharged and not used as mixing water for the next batch.

   c. Maximum interval between successive truckloads of concrete discharged into the work shall not exceed 30 minutes when the portion of the work being placed requires more than one load of concrete.

2.06 MORTAR FILL

A. Mortar fill to form fillets, channel bottom and swept-in grout, where shown on the contract drawings, shall be made with the following proportions:

Sand	1 part
Cement	22 parts
Water	minimum required for workability

PART 3 - EXECUTION

3.01 PLACING CONCRETE

A. Concrete shall be placed in conformance to ACI 304 and with these specifications.

B. Prior to placing concrete:

1. All form work, embedded parts, reinforcements, foundation surfaces and joints involved in the work must be inspected by the Engineer.
2. All surfaces that will be in contact with the poured concrete shall be free from standing water, mud, debris, frost, snow and ice.
3. Earth surfaces which are absorptive shall be moistened to a depth of 1 inch.
4. When the ambient temperature is above 401F, all subgrade surfaces shall be wetted down with cool water just prior to placement.
5. All reinforcing bars and embedded parts shall be cleaned of any coating of oil, grease, ice, dried mortar or any other foreign matter that will prevent bond with the concrete.
6. Preparation of joints shall be specified under the section entitled Joints for Concrete.
7. The Contractor shall build into the concrete such items as reinforcing steel, inserts, sleeves, watertops, etc., as shown on the contract drawings or as specified.
   a. All embedded items shall be accurately located and securely fastened in place to prevent displacement during the placement of the concrete.
   b. The Contractor shall cooperate with all other trades in permitting ample time for the placement of all necessary sleeves, inserts, conduits, hangers, etc. required for their trades.

   c. If in the judgment of the Engineer, the embedded items are placed in such a manner to reduce the structural adequacy of the structure, the Contractor shall take the necessary corrective steps.

8. All anchor bolts for structural steel and mechanical equipment shall be carefully set as shown on the contract drawings and as shown on the fabricator's and manufacturer's reviewed anchor bolt setting plans.

C. Placement of Concrete

1. Concrete shall be conveyed by means that will prevent segregation and loss of mortar from the mix.
2. Adequate manpower and equipment in the form of buckets, buggies, chutes, conveyors, or other approved means shall be provided and properly maintained by the Contractor to ensure continuous operations.
3. Care shall be taken that no equipment with aluminum parts comes in contact with the fresh concrete.
4. Deposit concrete vertically, using chutes, elephant trunks or other suitable devices to limit free fall to 5 feet.
5. Place formed concrete in continuous horizontal layers not more than 18 inches thick. When the time between successive layers exceeds one hour, the specified water reducing, retarding admixture, Type "D", will be required to delay initial set so that proper consolidation of lifts can occur and cold joints are avoided.
6. When a column-slab combination or a wall-slab combination pour is scheduled, the column or wall shall have taken its initial set before concreting is continued on the slab. Beams, girders, brackets, column capitals and haunches shall be considered as part of the floor system and shall be placed integrally therewith.
7. Following a discontinuance or interruption in the placement of the concrete, all accumulations of mortar splashed upon the reinforcing steel and the surfaces of the forms shall be removed.
8. Dried mortar chips and dust shall not be puddled into the plastic concrete.
9. The forms or formwork shall not be jarred or the exposed reinforcement disturbed in any manner after the concrete has taken its initial set.

D. Pneumatic Placement

1. Pneumatic placement of concrete will be permitted only if authorized by the Engineer, in writing.
2. The equipment shall be suitable in kind and adequate in capacity for the work.
3. The equipment shall be operated and placed so that no vibrations result which may damage freshly placed concrete.

4. The machine shall be located as close as practicable to the place of deposit.
5. The position of the discharge end of the line shall not be more than 8 feet from the point of deposit.

6. The discharge lines shall be horizontal or inclined upward from the machine.
7. At the conclusion of placement, the entire equipment shall be thoroughly cleaned.

E. Pumping

1. Pump placement of concrete will be permitted only if authorized by the Engineer, in writing.
2. The equipment shall be suitable in kind and adequate in capacity for the work.
3. The operation of the pump shall be such that a continuous stream of concrete, without air pockets, is produced.
4. When pumping is completed, the concrete remaining in the pipeline, if it is to be used, shall be ejected in such a manner that will not produce contamination of the concrete or separation of the concrete ingredients.
5. Prior to starting the pumping operations, the equipment and pipeline shall be thoroughly lubricated with a cement slurry in a manner approved by the Engineer.
6. After the pumping operation has been completed, the entire equipment shall be thoroughly cleaned.

F. Depositing Concrete Under Water or Flooding of Concrete

1. No concrete shall be deposited under water without the written permission of the Engineer and then only in accordance with the engineers' directions. Proper tremie equipment and techniques must be used, should the need for placement under water arise.
2. No water except curing water shall be allowed to come in contact with the concrete or masonry surface for a minimum of 24 hours.
    a. Should unavoidable rising water put a stress on the concrete, adequate bracing must be provided.
    b. Loading of flooded concrete shall not occur without the approval of the Engineer. Safety precautions shall be the responsibility of the Contractor.

G. Interruption of Concreting

1. Should the placement of concrete be suspended or unavoidably interrupted, keyways and bulkheads shall be provided and steps taken to prevent feather edging when work is eventually resumed. Horizontal surfaces shall be roughened for bond. Joint preparation and bonding shall be in compliance with the section entitled Joints for Concrete.

H. Consolidation of Concrete:

1. Concrete shall be consolidated during and immediately after depositing. The consolidation shall be in conformance with ACI 309 in all respects and shall be accomplished by mechanical vibration subject to the following conditions:
   a. The vibration shall be internal, unless special authorization is given by the Engineer for external vibration.
   b. Vibrators shall be capable of transmitting vibration to the concrete at frequencies recommended by ACI 309, "Recommended Practice for Consolidation of Concrete".
   c. The intensity of the vibration shall be such as to visibly affect the mass of concrete by a slump of 1 inch over a radius of 18 inches.
   d. The Contractor shall supply a sufficient number of vibrators to properly consolidate each pour immediately after it is placed. Standby vibrators in good condition shall be readily available, if needed, during concrete placement.
   e. Vibrators shall not be applied directly to the reinforcement or to the forms. They shall not be used to make the concrete flow in the forms over distances so great as to cause segregation.
2. Vibration shall be supplemented by spading as necessary to ensure smooth surfaces and well consolidated concrete. Form surfaces and corner locations that are difficult to consolidate with vibrators shall be consolidated by spading.

3.02 COLD WEATHER CONCRETING

A. Adequate equipment shall be provided for heating the concrete materials and protecting the concrete during freezing or near freezing weather.

B. No frozen materials nor materials containing ice shall be used.

C. All concreting operations in cold weather, when temperatures are at, or expected to be below 401F, shall conform to ACI 306.

1. Special attention is drawn to the minimum required placing and curing temperatures.

D. Only the specified non-chloride accelerator may be used. Calcium chloride or admixtures containing more than .1 percent chloride ions are not permitted.

E. Concrete damaged by freezing shall be removed and replaced at the Contractor's expense.

3.03 HOT WEATHER CONCRETING

A. Care shall be taken to protect the concrete or to schedule operations to avoid problems with flash set or conditions that produce excessively rapid drying.

B. All concrete operations during hot weather shall conform to the requirements of ACI 305.

C. During hot weather, consideration shall be given to maintaining the temperature of the cement, aggregates and mixing water, such that the temperature of the concrete at the time of delivery to the job site in no case exceeds 901F.

D. When the temperature of the concrete exceeds 801F, the water reducing, retarding admixture, Type "D", may be required.

3.04 PLACING MORTAR FILL

A. Prior to placing mortar fill, the concrete surface shall be thoroughly cleaned to remove all laitance, oil, grease, and other foreign matter that would prevent bonding.

B. Immediately following the placement of the mortar fill, a slurry coat shall be rubbed into the concrete surface.

C. The specified curing and sealing materials must be used for complete curing of the mortar fill.

3.05 EQUIPMENT BASES

A. Unless otherwise shown, equipment bases shall be constructed of Class "B" concrete. Size and location shall be coordinated with the manufacturer's equipment drawings.

B. All bases or pads shall be reinforced with a minimum of #4 at 12 inches on center, or as detailed on the contract drawings. The reinforcing shall be dowelled into the base or slab with #4 bars.

C. The concrete slab or base shall be roughened and the specified bonding compound applied.

D. The concrete shall be placed to the required profile and all exposed surfaces shall be finished as specified for the adjacent floor finishes. All edges shall be chamfered and tooled.

3.06 CONCRETE TOPPING

A. Concrete topping shall be provided where shown on the contract drawings. The thickness of the toppings shall be as shown on the drawings, but in no case shall they be less than 2 inches.

B. Unless otherwise noted, concrete for toppings shall be Class "B" concrete.

C. Subsequent to float finishing the concrete substrate, the Contractor shall prepare the surface to receive the topping by employing one of the following two alternate methods:

1.a. Within six to twelve hours after the float finishing is completed, all loose mortar, scum, laitance, etc., shall be removed by wire brushes or other suitable means to expose the coarse aggregate.

1.b. Care shall be exercised that the aggregate in the hardened concrete is not disturbed. Any aggregate that is disturbed shall be removed.

1.c. The concrete substrate shall then be cured as specified herein and shall be protected until placement of the topping is completed.

2.a. Anytime after the concrete substrate has hardened, the entire surface shall be scarified to expose a clean surface of sound concrete.
2.b. Leave the surface rough to a depth of $^{1}/_{8}$-inch.

D. Prior to placing the concrete for the topping, the hardened concrete surface shall be thoroughly cleaned and moistened. However, the surface shall be free from excessive surface water.

E. Apply bonding compound to the prepared and cleaned surface per the manufacturer's recommendations:

1. The Contractor shall have the option of using a bonding grout composed of:

Cement	One Part
Sand	One Part (100% passing No. 30 sieve)
Bonding Admixture	per manufacturer's direction
Water	(Maximum Slump of 6 inches)

The bonding grout shall be brushed into the existing surface of the concrete. The topping must then be placed while the bonding grout is still tacky.

F. Reinforcing for concrete toppings, when called for, shall be WWF 6x6 - W2.9 x W2.9 supplied in flat sheets, and shall be pressed into the wet concrete as the concrete is placed. The clear distance from the surface of the topping to the fabric shall be 1 inch.

G. The concrete topping shall be cured by application of the specified curing and sealing materials. The curing must start immediately after the final finishing is complete.

H. Joints shall be saw-cut in the topping and sealed as shown on the contract drawings.

I. The concrete topping shall receive finish specified for floors and slabs.

3.07 FINISHING

A. Floors and Slabs

1. Exposed Concrete Finish
   a. Strike off to correct elevation immediately after placing concrete.
   b. Bull float after screeding.
   c. When the concrete will sustain foot pressure and all bleed water and surface sheen has evaporated from the surface, begin power float operation. The surface shall be floated at least twice, to uniform, sandy texture. Hand float inaccessible areas.
   d. Immediately following the power float operation, power trowel the surface at least twice, to a smooth, hard finish. Hand trowel inaccessible areas. Trowelled finish slabs shall be level so that depressions between high spots do not exceed 1/8-inch under a 10 foot straight edge.
   e. Final trowelling shall be done so that a ringing sound is produced as the trowel is drawn over the surface. The finished surface shall be free of all trowel marks.
   f. Apply the specified curing and sealing compounds to all exposed concrete finished floors and to the bottom of all concrete channels immediately following final finishing operations. Application of curing and sealing compounds shall be in two coats per manufacturer's recommendations. The sealing coat shall be applied just prior to the completion of construction.
2. Tank Base Slabs
   a. Tank base slabs which do not receive subsequent toppings or swept in-grout are to have a power trowelled finish as outlined in 1. a., b., c. and d. above.
   b. Commence curing immediately after power trowelling.

3. Culvert inverts, manhole bottoms, catch basins and other exterior concrete not intended for occupancy.
   a. Magnesium Float Finish.

B. Formed Surfaces

1. Special care shall be taken during the forming for concrete and the concrete placement such that the amount of work required under this section is reduced to a minimum.
2. If, upon removal of the formwork, any voids or honeycombs are found, such faults shall be corrected immediately at the Contractor's expense by implementing the following:
   a. Cut away the unsound area to a minimum depth of 1 inch and refill with mortar mixed with the same brand of cement and same proportions as the original placement.
   b. Edges of the patch shall be square with the face with feather-edging prohibited.
   c. Dampen the area to be patched and then apply the specified bonding agent per manufacturer's recommendations.
   d. Fill the hole with mortar with a 2-inch layer after the bonding compound has dried. Succeeding 2-inch layers will be placed after the first layer has taken initial setting.
   e. If, in the opinion of the Engineer, improper consolidation is too extensive, or if the structure appears weakened by the voids, complete removal of the concrete in question may be required.
   f. Patches must be kept moist for a minimum of three days.
3. Rubbed Finishes
   a. The type of finish to be used shall be as scheduled or as noted on the contract drawings. Where the type of finish is not shown or scheduled, exposed faces shall be given a Type "B" finish and unexposed faces shall be given a Type "C" finish. Where concrete is to receive paint or a glazed wall finish, a Type "B" finish shall be used. The finishes are designated as follows:

      Type "A": Surfaces shall be rubbed until all marks are obliterated and a uniformly smooth finish is obtained.

      Type "B": Surfaces shall be rubbed until they are uniformly smooth, but complete obliteration of all marks is not required.

      Type "C": All fins, burrs, and projections shall be removed. Any honeycomb or tie-holes shall be filled and patched.

      1. Begin rubbing within four hours of the removal of the formwork and expedite to completion as rapidly as practicable.

2. Rub surfaces with carborundum and water until all fins, bubbles, hollows and other defects are removed.
3. Do not use grout or mortar in the rubbing process. Plastering of surfaces will not be allowed.
4. Use power tools with hand work limited to inaccessible corners or small areas.
5. After the rubbing is completed and the surface has dried, rub the surface with burlap to remove all loose powder.
6. All expansion joints in the completed work shall be left carefully tooled and free of all mortar and concrete.

3.08 CURING

A. Maintain all concrete in a moist condition for the duration of the specified curing using the methods that will ensure complete and continuous saturation. Use of water sprays is acceptable provided care is exercised to ensure continuous moist curing. Alternate wetting and drying is prohibited. The curing schedule is as follows:

1. Interior floor slabs with resilient tile, carpet or exposed surface:
   a. Cure with specified curing and sealing compounds.
2. Exterior slabs, sidewalks, curbs, etc.:
   a. Cure with specified curing and sealing compounds.
3. Remaining Floor Slabs and Tank Base Slabs
   a. Cure with curing paper conforming to ASTM C171 with minimum 10 mil polyethylene sheets. Lap all edges a minimum of 6 inches. All joints shall be continuously taped. If any tearing or ripping of the sheets during subsequent operations on the slab occur within the specified curing period, repair by taping or replacement will be required. Add water as required periodically or as ordered by the Engineer.
4. Vertical Surfaces
   a. Forms shall remain in place or the exposed concrete shall be covered with wet burlap during the curing period.
      1. The forms or burlap surfaces shall be kept continuously saturated throughout the curing period.

B. Where specifically approved by the Engineer, in writing, the specified curing and sealing compounds may be used on other surfaces provided discoloration does not occur and the application is in accordance with the manufacturer's recommendations. Written certification of compatibility with subsequent finishes must be supplied by the finish manufacturer. In general, do not use curing and sealing compounds on the following surfaces:
   1. Any surface against which additional concrete or other cementitious finishing materials are to be bonded.

2. Any surface in which a waterproofing membrane is to be applied.

C. During the curing period, exercise care to prevent excessive vibrations, mechanical disturbances or heavy shocks which may damage concrete.

D. Duration of Curing

1. Continue curing until the cumulative number of days, not necessarily consecutive, during which the temperature of the air in contact with the concrete is above 451F has totaled seven days (three days for high early strength concrete).

END OF SECTION

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SECTION 033100

CONCRETE FORMWORK

PART 1 - GENERAL

1.01 WORK SPECIFIED

A. All labor, materials, services and equipment necessary for furnishing, installing and removing all formwork for cast-in-place and precast concrete.

1.02 WORK SPECIFIED UNDER OTHER SECTIONS

A. Reinforced Concrete.

B. Concrete Reinforcement.

C. Joints for Concrete.

D. Concrete.

1.03 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. ACI 347 - Recommended Practice for Concrete Formwork.

C. PS 1 - Construction and Industrial Plywood.

1.04 SYSTEM DESCRIPTION

A. Design, engineer, and construct formwork, shoring, and bracing to meet design and code requirements, so that the resultant concrete conforms to the required shapes, lines and dimensions as shown on the Contract Drawings.

1.05 QUALITY ASSURANCE

A. The contractor shall be responsible for designing and constructing suitable and adequate falsework which shall be designed in accordance with ACI 347 "Recommended Practice for Concrete Formwork."

B. The design of forms will take into account the effect of construction loads during and after placement of concrete.

C. The forms shall be substantial, unyielding and constructed mortar tight and of sufficient rigidity to prevent distortion due to the pressures of concrete and other loads incidental to the construction operations.

1.06 FIELD SAMPLES

A. Field samples of formed concrete must be submitted when the surface of the concrete is to receive a special architectural treatment.

B. Construct and erect sample formwork panel for architectural concrete surfaces receiving special treatment or finish as a result of formwork. Formwork shall include a vertical and a horizontal form joint.

1.07 SUBMITTALS

A. Shop drawings must be submitted that show in detail the items of the form system affecting the appearance of architectural concrete surfaces such as joints, tie holes, liners, patterns and textures. Items must be shown in relation to the entire form system.

B. Manufacturers' literature must be submitted with descriptions and recommended installation instructions for form ties, spreaders, corner formers, form liners and form coatings.

C. Submittals shall indicate pertinent dimensions, materials and arrangement of joints and ties.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials with care to prevent damage to or contamination of formwork.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

A. Plywood: Exterior type softwood plywood, PS 1-66.

B. Glass Fiber Fabric-Reinforced Plastic Forms: Shall be matched, tight fitting, stiffened to support the weight of wet concrete without deflections that exceed the structural tolerances or that are detrimental to the appearance of the finished concrete.

C. Lumber: Softwood framing lumber, PS 20-70. Grade markings shall be clearly visible and shall be marked by grading rules approved by the American Lumber Standards Committee.

D. Steel: Minimum 16 gauge sheet, well matched, tight fitting, stiffened to support the weight of wet concrete without deflections that exceed the structural tolerances or that are detrimental to the appearances of the finished concrete. Metal forms may be used only for forming precast concrete.

E. Void Forms: Shall be moisture resistant treated paper faces, seamless, laminated fiber material as approved by the Engineer. The forms shall be structurally sufficient to support the weight of a wet concrete mix and any construction or consolidation vibrations until the initial set.

2.02 FORMWORK ACCESSORIES

A. Form ties shall be left in place and equipped with swaged (waterproofing) washers or other approved devices to prevent seepage of moisture along the tie.

1. Minimum 1 inch depth of breakback.

B. Form release agent shall be a colorless material which will not stain concrete, absorb moisture, or impair finish, bonding or color characteristics of coating intended for use on concrete.

C. Fillets shall be used for all exposed vertical and horizontal corners.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify lines, levels and measurements before proceeding with formwork.

B. Notice shall be given 24 hours in advance of pour so that an inspection can be scheduled.

C. Forms shall be inspected by the Engineer prior to concreting.

D. No concreting shall be done in the absence of the Engineer without the written permission of the Engineer.

3.02 PREPARATION

A. Conform to ACI 347, expect as specified herein.

B. Initially and before re-use, forms shall be cleaned and a coat of non-staining form release agent applied per the manufacturer's instructions.

1. Care shall be taken to avoid splashing oil on reinforcing steel or existing concrete.
2. Do not apply form release agent where concrete surfaces are scheduled to receive special finishes which may be affected by agent.

3.03 ERECTION

A. Provide bracing to ensure stability of formwork. Strengthen all formwork liable to be overstressed by construction loads.

B. Camber slabs and beams to achieve ACI 301 tolerances.

1. 1/4-inch in 15 feet of span.

C. Provide temporary ports in formwork to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain. Close ports with tight fitting panels, flush with inside face of forms, neatly fitted so that joints will not be apparent in exposed concrete surfaces.

D. All form joints shall be backed up to assure that the edges of abutting panels are in the same plane, straight and true, and forced tightly together to minimize fins. The quality of the form contact surfaces shall be subject to the Engineer's approval.

E. If installing void forms, protect them from moisture before concrete placement, protect from crushing during concrete placement.

F. Do not displace or damage vapor barriers previously placed.

G. Forms for exposed concrete shall be given special attention to provide a surface free from defects and form marks so that rubbing and finishing shall be kept to a minimum.

H. Construct formwork to maintain tolerances in accordance with ACI 301.

3.04 INSERTS, EMBEDDED PARTS AND OPENINGS

A. Provide formed openings where required for work embedded in or passing through concrete.

B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors and other inserts.

C. Install accessories in accordance with manufacturer's instructions, level and plumb. Ensure items are not disturbed during concrete placement.

3.05 FORM REMOVAL

A. Do not remove forms and shoring or bracing until concrete has sufficient strength to support its own weight, and construction and design loads which may be imposed upon it.

B. The following schedule shall be considered the minimum period before formwork can be removed under normal conditions with the use of Type II cement. Its use shall not relieve the contractor of responsibility for the safety and appearance of the structure.

Type of Form	Above 60EF	50E-60EF	40E-50EF
Columns 5' high	24 hours	36 hours	72 hours
Columns 5'-10' high	3 days	5 days	7 days
Columns 10' high	5 days	7 days	10 days
Walls 5'	24 hours	36 hours	72 hours
Walls 5-10'	3 days	5 days	7 days
Walls 10'	5 days	7 days	10 days
Beam Side Forms	24 hours	36 hours	72 hours
Beam Bottom Forms	14 days	18 days	21 days
Slabs 6' Span*	5 days	7 days	14 days
Construction Joint	24 hours	36 hours	72 hours
Bulk Heads	24 hours	36 hours	72 hours

*For slabs of more than 6 foot span add twelve (12) hours for each additional foot over 5 feet.

1. When the temperature to which the forms or concrete surfaces are exposed to falls below 40EF, the forms shall remain in place an additional time equal to the time of the sub-40EF exposure. If form insulation is used, concrete surface temperature shall apply.
2. The Engineer may modify the form removal schedule if compressive tests indicate that the in-place concrete is of sufficient strength. Methods of field curing the cylinders shall simulate that of the concrete and shall be approved by the Engineer. All such tests shall be at the option and expense of the contractor.
3. When Type III cement or retarders are used, the form removal schedule above does not apply and may be modified by the Engineer.

C. Immediately following the removal of the forms, the projecting ties shall be removed and all holes filled with grout flush with the wall. Care shall be taken to use the same brand of cement and same mix proportions used in the wall to prevent color differences.

3.06 CLEANING

A. Clean forms to remove foreign matter as erection proceeds.

B. Ensure that water and debris drain to exterior through clean-out ports.

C. During cold weather, remove ice and snow from forms. Do not use de-icing salts. Do not use water to clean out completed forms, unless formwork and construction proceed within heated enclosure. Use compressed air to remove foreign matter.

END OF SECTION

SECTION 033200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 WORK SPECIFIED

A. All labor, materials, equipment and services necessary for furnishing and installing all steel reinforcement, welded steel wire fabric and accessories for concrete required for the completion of the work.

1.02 WORK SPECIFIED UNDER OTHER SECTIONS

A. Concrete Formwork

B. Joints for Concrete

C. Concrete

1.03 REFERENCES

A. American Concrete Institute (ACI). The following codes, standards and recommendations are intended to specify minimum standards of performance:

1. ACI 301 Specifications for Structural Concrete for Buildings.
2. ACI 315 Details and Detailing of Concrete Reinforcement.

B. American Society for Testing and Materials (ASTM). The following codes, standards and recommendations are referred to in these specifications and are to be considered a part of these specifications.

1. ANSI/ASTM A82 Cold Drawn Steel Wire for Concrete Reinforcement.
2. ANSI/ASTM A185 Welded Steel Wire Fabric for Concrete Reinforcement.
3. ASTM A615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

C. Concrete Reinforcing Steel Institute (CRSI). The following codes, standards, and recommendations are referred to in these specifications and are to be considered a part of these specifications.
   1. CRSI Manual of Practice.
   2. CRSI 63 Recommended Practice for Placing Reinforcing Bars.
   3. CRSI 65 Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.

1.04 QUALITY ASSURANCE

A. Perform concrete reinforcement work in accordance with CRSI Manual of Standard Practice, and Documents 63 and 65.

B. Conform to ACI 301 and 315.

1.05 SHOP DRAWINGS

A. Submit shop drawings.

B. Indicate sizes, spacings, locations and quantities of reinforcing steel, wire fabric, bending and cutting schedules, splicing, stirrup spacing, supporting and spacing devices.

1.06 CERTIFICATES

A. Submit mill test certificates of supplied concrete reinforcing, indicating physical and chemical analysis.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade billet-steel deformed bars, uncoated finish.

B. Welded Steel Wire Fabric: ANSI/ASTM A185 plain type; in flat sheets; coiled rolls; uncoated finish.

C. Stirrup Steel: ANSI/ASTM A82.

2.02 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage annealed type.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during installation and placement of concrete including load bearing pad on bottom to prevent vapor barrier puncture.

C. Chairs, Bolsters, Bar Supports, Spacers Adjacent to Architectural Concrete Surfaces: Plastic tipped type; sized and shaped as required.

2.03 FABRICATION

A. Unless otherwise shown or directed, the following minimum concrete cover shall be provided for reinforcement.

		Minimum Cover, Inches.
1.	Concrete cast against and permanently exposed to earth	3
2.	Concrete exposed to earth or weather	
	No. 6 through No. 18 bar	2
	No. 5 bar and smaller	1-12
3.	Concrete not exposed to weather or in contact with ground:	
	Slabs, nails, joists:	
	No. 14 and No. 18 bars	12
	No. 11 and smaller	3/4
	Beams, columns:	
	Primary reinforcement, ties, stirrups, spirals	12
4.	Concrete exposed to water or sewerage slabs, walls	2

B. Locate reinforcing splices not indicated on drawings at points of minimum stress. Indicate location of splices on shop drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Before placing concrete, clean reinforcement of foreign particles or coatings.

B. Place, support and secure reinforcement against displacement. Do not deviate from alignment or measurement.

C. Do not displace or damage vapor barrier, if required.

END OF SECTION

SECTION 042000
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete masonry units.

B. Mortar and grout.

C. Masonry joint reinforcement.

D. Ties and anchors.

E. Miscellaneous Masonry Accessories.

1.02 RELATED REQUIREMENTS

Section 033000 - Cast-in-Place Concrete: For dovetail slots for masonry anchors.

Section 055000 - Metal Fabrications: Steel lintels and shelf angles for unit masonry.

Section 078400 - Firestopping: Firestopping at penetrations of fire-rated masonry and at top of fire-rated walls.

Section 079200 - Joint Sealants: Sealing control and expansion joints.

1.03 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.04 REFERENCE STANDARDS

A. ACI 530.0 / ASCE 6 / TMS 602 - Specification for Masonry Structures (unless modified by requirements in the contract documents.

B. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2021.

C. ASTM C150/C150M - Standard Specification for Portland Cement; 2020.

D. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.

E. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.

F. ASTM C476 - Standard Specification for Grout for Masonry; 2020.

G. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

1.05 SUBMITTALS

A. See Section 01 3300 "Submittal Procedures" , for submittal procedures.

B. Product Data: Provide data for masonry units. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide stateent of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1 / ASCE 6 / TMS 602.

C. Product Data: Provide data for fabricated wire reinforcement and masonry accessories.

D. Product Data: Provide data for each type of mortar. Include description of type and proportions of ingredients.

E. Shop Drawings: Indicate pertinent dimensions, materials, anchorage, size and type of fasteners, and accessories for CMU support system.

F. Manufacturer's Certificate: 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. Joint reinformcement.
   5. Anchors, ties, and metal accessories.

G. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.

H. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

I. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.06 QUALITY ASSURANCE

A. Comply with provisions of ACI 530.1 / ACSE 6 / TMS 602, unless modified by requirements in the Contract Documents.

B. 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.

C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from ingle manufacturer for each cementitious componenet and from single source or producer for each aggregate.

D. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum five (5) years of documented experience.

E. Installer Qualifications: The masonry installation contractor shall provide qualified installers. The International Masontry Institute (IMI) provides training and technical services to contractors will come to the job site to train masons inflashing fundamentals. Each employee shall receive this training prior to performing work on this project.

1.07 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.

PART 2 PRODUCTS

2.01 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 fire-resistance 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.

2.02 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.
   2. Provide bullnose units for outside corners unless otherwise indicated.

B. CMUs: ASTM C 90.
   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.

2.03 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. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. 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.

E. Aggregate for Grout: ASTM C 404

F. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent by same manufacturer.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. ACM Chemistries; RainBloc for Mortar.
      b. BASF Aktiengesellschaft; Rheopel Mortar Admixture.
      c. Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.

d. Substitutions: See Section01 6000-Product Requirements.

G. Water: Potable.

2.04 MASONRY JOINT REINFORCEMENT

A. Manufacturers:
1. Blok-Lok Limited www.blok-lok.com/#sle.
2. Hohmann & Barnard, Inc; X-Seal Anchor: www.h-b.com/#sle.
3. WIRE-BOND: www.wirebond.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

B. Uncoated Steel Reinforcing Bars: ASTM A 615 or ASTM A 996, Grade 60.

C. 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.

D. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

E. Masonry Joint Reinforcement for Multiwythe Masonry:
1. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches. Size ties to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face.

2.05 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. Corrugated Metal Ties: Metal strips not less than 7/8 inch wide with corrugations having a wavelength of 7.6 to 12.7 mm and an amplitude of 0.06 to 0.10 inch made from 0.030-inch-thick, steel sheet, galvanized after fabrication.

2.06 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane or PVC.

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 or PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226/D 226M, Type I (No. 15 asphalt felt).

2.07 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.

2.08 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: ASTM C270, using the Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
   1. Masonry below grade or in contact with earth: Type S.
   2. For reinforced masonry, use Type S.
   3. For mortar parge coats, use Type S.
   4. 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.
   5. For interior non-load-bearing partitions, Type O may be used instead of Type

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.

2.09 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.
   1. Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.
   2. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building 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 3 EXECUTION

3.01 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.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

A. Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

3.04 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:

3.05 LINTELS

A. Install loose steel lintels over openings.

3.06 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. 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.

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. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.07 TOLERANCES

A. Dimensions and Locations of Elements:
   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.

B. Lines and 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.

3.08 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 webs fully bedded in mortar in all courses of piers, columns, and pilasters.
   3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
   4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

C. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.09 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. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
   3. 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. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.10 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 non-masonry 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 concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
   5. Clean stone trim to comply with stone supplier's written instructions.
   6. Clean limestone units to comply with recommendations in ILI's "Indiana Limestone Handbook."

3.11 FIELD QUALITY CONTROL

A. Notify Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Architect's Project representatives have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.

3.12 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 soil-contaminated 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 042000

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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. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.

C. Section 042000 - Unit Masonry: Placement of metal fabrications in masonry.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2020.

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

D. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.

E. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

F. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.

G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 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. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

J. 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; 2021.

K. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

L. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2021).

M. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2014, with Errata (2020).

N. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

O. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

P. SSPC-SP 2 - Hand Tool Cleaning; 2018.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, 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.
   2. Design data: Submit drawings and supporting calculations, signed and sealed by a qualified professional structural engineer.
      a. Include the following, as applicable:
         1) Design criteria.
         2) Engineering analysis depicting stresses and deflections.
         3) Member sizes and gauges.
         4) Details of connections.
         5) Support reactions.
         6) Bracing requirements.

1.05 QUALITY ASSURANCE

A. Design _____ under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M and dated no more than 12 months before start of scheduled welding work.

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. Slotted Channel Fittings: ASTM A1011/A1011M.

G. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.

H. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.

I. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain. Includes:
   1. Grade A325/A325M
   2. Grade A490/A490M

J. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

K. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

L. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

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. Furnish 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. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

B. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.

C. Lintels: As detailed; galvanized finish.

D. Sill Angles for Tempered Glass Railing Assemblies: ASTM A36/A36M steel angles with anchoring devices and sizes as indicated in shop drawings for railing assembly, drilled and tapped for fastener types, sizes, and spacing indicated, prime paint finish.

E. Door Frames for Overhead Door Openings, Wall Openings, and _____: Channel sections; prime paint finish.

F. Recessed Mat Frames : As detailed; steel, galvanized finish.

G. Elevator Hoistway Divider Beams: Beam sections; prime paint finish.

H. Toilet Partition Suspension Members: Steel channel sections; prime paint finish.

I. 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, and items specified for _____ finish.
   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. (Provide minimum 530 g/sq m galvanized coating.)

F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

G. Slotted Channel Framing: ASTM A653/A653M, Grade 33.

H. Stainless Steel Finish: No. 4 Bright Polished finish.

2.06 FABRICATION TOLERANCES

A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).

C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).

D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).

E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

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. Furnish 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 (6 mm) per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch (6 mm).

C. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF SECTION 055000

SECTION 061000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roofing nailers.

B. Preservative treated wood materials.

C. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.

C. AWPA U1 - Use Category System: User Specification for Treated Wood; 2021.

D. PS 20 - American Softwood Lumber Standard; 2021.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.04 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review

B. Evaluation Reports: For the following, from ICC-ES:
   1. Wood-preservative-treated wood.
   2. Post-installed anchors.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Correct defective work within a two-year period commencing on Date of Substantial 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 at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

2.03 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.

2.04 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. 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. Preservative Treatment:
   1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber in contact with roofing, flashing, or waterproofing.
      c. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

3.02 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. Provide the following specific nonstructural framing and blocking:
   1. Cabinets and shelf supports.
   2. Grab bars.
   3. Towel and bath accessories.

3.03 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.04 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.

END OF SECTION 061000

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SECTION 076200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Flashing.

1.03 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.
   1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

C. SPRI Wind Design Standard: Manufacture and install roof-edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressures:
   1. Design Pressure: As indicated on Drawings.

D. Metal Edge Securement: Install in accordance with ANSI/SPRI ES-1, “American National Standard for Edge Systems Used with Low-Slope Roofing Systems.”

1.04 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
   1. Identification of material, thickness, weight, and finish for each item and location in Project.
   2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
   3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
   4. Details of termination points and assemblies, including fixed points.
   5. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
   6. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.
   7. Details of special conditions.
   8. Details of connections to adjoining work.

C. Qualification Data: For qualified fabricator.

D. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.

E. Warranty: Sample of special warranty.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

1.07 WARRANTY

A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
   1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
      a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
      b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
      c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
   2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.
   1. As-Milled Finish: Standard two-side bright finish.
   2. Surface: Smooth, flat.

2.02 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
   1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
      a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.

b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.

2. Fasteners for Copper Sheet: Copper, hardware bronze or Series 300 stainless steel.
3. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
4. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.

C. Solder:
1. For Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
2. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

H. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

I. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.03 MANUFACTURED SHEET METAL FLASHING AND TRIM

A. Reglets: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Cheney Flashing Company.
b. Fry Reglet Corporation.
c. Heckmann Building Products Inc.
d. Hickman, W. P. Company.
e. Hohmann & Barnard, Inc.; STF Sawtooth Flashing.
f. Keystone Flashing Company, Inc.
2. Material: Aluminum, 0.024 inch thick.
3. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
4. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
5. Accessories:
a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.

2.04 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
   1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
   2. Obtain field measurements for accurate fit before shop fabrication.
   3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
   4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

C. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

D. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

F. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.

G. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

H. Do not use graphite pencils to mark metal surfaces.

2.05 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof-Edge Flashing (Gravel Stop): Fabricate in minimum 96-inch- long, but not exceeding 10-foot- long, sections. Furnish with 6-inch- wide, joint cover plates.
   1. Joint Style: Butt, with 12-inch- wide, concealed backup plate.
   2. Fabricate with scuppers spaced 10 feet apart, of dimensions required with 4-inch- wide flanges and base extending 4 inches beyond cant or tapered strip into field of roof. Fasten gravel guard angles to base of scupper.
   3. Fabricate from the following materials:
      a. Aluminum: 0.050 inch thick.

B. Roof to Wall Transition and Expansion-Joint Cover: Fabricate from the following materials:
   1. Aluminum: 0.050 inch thick.

2.06 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Equipment Support Flashing: Fabricate from the following materials:
   1. Stainless Steel: 0.019 inch (0.48 mm) thick.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
   1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
   1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
   2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
   3. Space cleats not more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
   4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
   5. Install sealant tape where indicated.
   6. Torch cutting of sheet metal flashing and trim is not permitted.
   7. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
   1. Coat back side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.

D. Fastener Sizes: Use fasteners of sizes recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal joints as required for watertight construction.
   1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).

2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except reduce pre-tinning where pre-tinned surface would show in completed Work.
   1. Do not solder aluminum sheet.
   2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
   3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
   4. Copper Soldering: Tin edges of uncoated copper sheets using solder for copper.

3.03 ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

B. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in existing mortar joints, reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum of 4 inches (100 mm) and bed with sealant. Secure in a waterproof manner.

C. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.04 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

3.05 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.06 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.

E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 076200

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SECTION 078413
PENETRATION FIRESTOPPING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Penetrations in fire-resistance-rated walls.
   2. Penetrations in horizontal assemblies.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Product Schedule: For each penetration firestopping system. Include location and design designation of qualified testing and inspecting agency.
   1. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Installer Certificates: From Installer indicating penetration firestopping has been installed in compliance with requirements and manufacturer's written recommendations.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for penetration firestopping.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."
   1. Be a member in good standing of the Fire Stop Contractors International Association
   2. Licensed by a state or local authority , where applicable
   3. Approved by the Universities Fire Marshal for each specific Job
   4. Shown to have successfully completed not less than 5 comparable size projects.

B. Fire-Test-Response Characteristics: Penetration firestopping shall comply with the following requirements:
   1. Penetration firestopping tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
   2. Penetration firestopping is identical to those tested per testing standard referenced in "Penetration Firestopping" Article. Provide rated systems complying with the following requirements:
      a. Penetration firestopping products bear classification marking of qualified testing and inspecting agency.
      b. Classification markings on penetration firestopping correspond to designations listed by the following:
         1) UL in its "Fire Resistance Directory."

C. Preinstallation Conference: Conduct conference at Project site.

1.05 PROJECT CONDITIONS

A. Environmental Limitations: Do not install penetration firestopping when ambient or substrate temperatures are outside limits permitted by penetration firestopping manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.

B. Install and cure penetration firestopping per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.06 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping is installed according to specified requirements.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping.

C. Notify Owner's testing agency at least seven days in advance of penetration firestopping installations; confirm dates and times on day preceding each series of installations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Hilti, Inc. or approved equivalent.

2.02 PENETRATION FIRESTOPPING

A. Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.

B. Penetrations in Fire-Resistance-Rated Walls: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
   1. Fire-resistance-rated walls include fire-barrier walls.
   2. F-Rating: Not less than the fire-resistance rating of constructions penetrated.

C. Penetrations in Horizontal Assemblies: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
   1. Horizontal assemblies include floors.
   2. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
   3. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.

D. Penetrations in Smoke Barriers: Provide penetration firestopping with ratings determined per UL 1479.
   1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at 0.30-inch wg at both ambient and elevated temperatures.

E. W-Rating: Provide penetration firestopping showing no evidence of water leakage when tested according to UL 1479.

F. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

G. VOC Content: Penetration firestopping sealants and sealant primers shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
   1. Sealants: 250 g/L.
   2. Sealant Primers for Nonporous Substrates: 250 g/L.
   3. Sealant Primers for Porous Substrates: 775 g/L.

H. Low-Emitting Materials: Penetration firestopping sealants and sealant primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

I. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.
   1. Permanent forming/damming/backing materials, including the following:
      a. Slag-wool-fiber or rock-wool-fiber insulation.
      b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
      c. Fire-rated form board.
      d. Fillers for sealants.
   2. Temporary forming materials.
   3. Substrate primers.
   4. Collars.
   5. Steel sleeves.

2.03 FILL MATERIALS

A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.

C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.

E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.

F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

H. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

I. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and sloped surfaces, unless indicated firestopping limits use of nonsag grade for both opening conditions.

2.04 MIXING

A. For those products requiring mixing before application, comply with penetration firestopping manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface Cleaning: Clean out openings immediately before installing penetration firestopping to comply with manufacturer's written instructions and with the following requirements:
   1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.
   2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
   3. Remove laitance and form-release agents from concrete.

B. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent penetration firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping's seal with substrates.

3.03 INSTALLATION

A. General: Install penetration firestopping to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
   1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.

C. Install fill materials for firestopping by proven techniques to produce the following results:
   1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.

D. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

1. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.04 IDENTIFICATION

A. Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
   1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
   2. Contractor's name, address, and phone number.
   3. Designation of applicable testing and inspecting agency.
   4. Date of installation.
   5. Manufacturer's name.
   6. Installer's name.

3.05 FIELD QUALITY CONTROL

A. Owner will engage a qualified testing agency to perform tests and inspections.

B. Where deficiencies are found or penetration firestopping is damaged or removed because of testing, repair or replace penetration firestopping to comply with requirements.

C. Proceed with enclosing penetration firestopping with other construction only after inspection reports are issued and installations comply with requirements.

3.06 CLEANING AND PROTECTION

A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping is without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping and install new materials to produce systems complying with specified requirements.

3.07 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

A. Firestop Systems with No Penetrating Items: Comply with the following:
   1. Available UL-Classified Systems:
      a. C-AJ-0001-0999.
      b. W-L-0001-0999.
   2. Type of Fill Materials: One or more of the following:
      a. Latex sealant.
      b. Silicone sealant.
      c. Intumescent putty.
      d. Mortar.

B. Firestop Systems for Metallic Pipes, Conduit, or Tubing: Comply with the following:
   1. Available UL-Classified Systems:
      a. C-AJ-1001-1999.
      b. W-L-1001-1999.
   2. Type of Fill Materials: One or more of the following:

a. Latex sealant.
b. Silicone sealant.
c. Intumescent putty.
d. Mortar.

C. Firestop Systems for Nonmetallic Pipe, Conduit, or Tubing: Comply with the following:
1. Available UL-Classified Systems:
a. C-AJ-2001-2999.
b. W-L-2001-2999.
2. Type of Fill Materials: One or more of the following:
a. Latex sealant.
b. Silicone sealant.
c. Intumescent putty.
d. Intumescent wrap strips.
e. Firestop device.

D. Firestop Systems for Electrical Cables: Comply with the following:
1. Available UL-Classified Systems:
a. C-AJ-3001-3999.
b. W-L-3001-3999.
2. Type of Fill Materials: One or more of the following:
a. Latex sealant.
b. Silicone sealant.
c. Intumescent putty.
d. Silicone foam.

E. Firestop Systems for Insulated Pipes: Comply with the following:
1. Available UL-Classified Systems:
a. C-AJ-5001-5999.
b. W-L-5001-5999.
2. Type of Fill Materials: One or more of the following:
a. Latex sealant.
b. Intumescent putty.
c. Silicone foam.
d. Intumescent wrap strips.

F. Firestop Systems for Miscellaneous Electrical Penetrants: Comply with the following:
1. Available UL-Classified Systems:
a. C-AJ-6001-6999.
b. W-L-6001-6999.
2. Type of Fill Materials: One or more of the following:
a. Latex sealant.
b. Intumescent putty.
c. Mortar.

G. Firestop Systems for Miscellaneous Mechanical Penetrations: Comply with the following:
1. Available UL-Classified Systems:
a. C-AJ-7001-7999.
b. W-L-7001-7999.
2. Type of Fill Materials: One or both of the following:
a. Latex sealant.
b. Mortar.

H. Firestop Systems for Groupings of Penetrations: Comply with the following:
   1. Available UL-Classified Systems:
      a. C-AJ-8001-8999.
      b. W-L-8001-8999.
   2. Type of Fill Materials: One or more of the following:
      a. Latex sealant.
      b. Mortar.
      c. Intumescent wrap strips.
      d. Firestop device.
      e. Intumescent composite sheet.

I. Smoke-stop Systems
   1. For all non-rated partitions required to control smoke only provide the following:
      a. Mineral wool
      b. Fire and smoke stopping sealant

END OF SECTION 078413

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SECTION 079200
JOINT SEALANTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Silicone joint sealants.
   2. Nonstaining silicone joint sealants.
   3. Mildew-resistant joint sealants.
   4. Latex joint sealants.

1.02 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

1.03 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each kind of joint sealant, for tests performed by a qualified testing agency.

B. Sample Warranties: For special warranties.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.05 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
   2. When joint substrates are wet.
   3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
   4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.06 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: 10 years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
   1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
   2. Disintegration of joint substrates from causes exceeding design specifications.
   3. Mechanical damage caused by individuals, tools, or other outside agents.
   4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 PRODUCTS

2.01 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following:
   1. Architectural sealants shall have a VOC content of 250 g/L or less.
   2. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.
   3. Sealants and sealant primers for nonporous substrates shall have a VOC content of 775 g/L or less.

C. Low-Emitting Interior Sealants: Sealants and sealant primers shall comply with the testing and product requirements of the California Department of Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

D. Colors of Exposed Joint Sealants: Match Architect's samples.

2.02 SILICONE JOINT SEALANTS

A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Dow Corning Corporation.
         1) Product: 791
      b. GE Cosntruction Sealants; Momentive Performance Materials Inc.
         1) Product: SCS2000 SillPruf
      c. Sika Corporation; Joint Sealants.
         1) Product: Sikaill WS-295

2.03 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Dow Corning Corporation.
         1) Product: 795
      b. GE Cosntruction Sealants; Momentive Performance Materials Inc.
         1) Product: SillPruf NB
      c. Tremco Incorporated.
         1) Product: Spectrum 3

C. Silicone, Nonstaining, M, NS, 50, NT: Nonstaining, multi-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type M, Grade NS, Class 50, Use NT.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Tremco Incorporated.
         1) Product: Spectrum 4-TS

2.04 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Dow Corning Corporation.
         1) Product: 786 Silicone Sealant
      b. GE Cosntruction Sealants; Momentive Performance Materials Inc.
         1) Product: Sanitary SCS1700
      c. Tremco Incorporated.
         1) Product: Tremsil 200

2.05 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Pecora Corporation.
         1) Product: AC-20s
      b. Sherwin-Williams Company (The).
         1) Product: Bolt Quick Dry
      c. Tremco Incorporated.
         1) Product: Tremflex 834

2.06 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. BASF Corporation; Construction Systems.
   2. Construction Foam Products; a division of Nomaco, Inc.

C. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.07 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
   2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
      a. Concrete.
      b. Masonry.
      c. Unglazed surfaces of ceramic tile.
      d. Exterior insulation and finish systems.
   3. Remove latiance and form-release agents from concrete.
   4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

a. Metal.
b. Glass.
c. Porcelain enamel.
d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

G. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.04 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.06 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
   1. Joint Locations:
      a. Construction joints in cast-in-place concrete.
      b. Joints between plant-precast architectural concrete units.
      c. Control and expansion joints in unit masonry.
      d. Joints in dimension stone cladding.
      e. Joints in glass unit masonry assemblies.
      f. Joints in exterior insulation and finish systems.
      g. Joints between metal panels.
      h. Joints between different materials listed above.
      i. Perimeter joints between materials listed above and frames of doors, windows and louvers.
      j. Control and expansion joints in ceilings, and other overhead surfaces.
      k. Other joints as indicated on Drawings.
   2. Joint Sealant: Silicone, S, NS, 50, NT.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
   1. Joint Locations:
      a. Construction joints in cast-in-place concrete.
      b. Joints between plant-precast architectural concrete units.
      c. Control and expansion joints in unit masonry.
      d. Joints in dimension stone cladding.
      e. Joints in glass unit masonry assemblies.
      f. Joints in exterior insulation and finish systems.
      g. Joints between metal panels.
      h. Joints between different materials listed above.
      i. Perimeter joints between materials listed above and frames of doors, windows and louvers.
      j. Control and expansion joints in ceilings, and other overhead surfaces.
      k. Other joints as indicated on Drawings.
   2. Joint Sealant: Silicone, non-staining, S, NS, 50, NT.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal traffic and nontraffic surfaces.

1. Joint Locations:
   a. Exterior and interior joints in Concrete Slabs and Sidewalk
   b. Other joints as indicated on Drawings.
2. Joint Sealant: Silicone, non-staining, S, NS, 50, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.
   1. Joint Locations:
      a. Control joints on exposed interior surfaces of exterior walls.
      b. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.
      c. Other joints as indicated on Drawings.
   2. Joint Sealant: Acrylic latex.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
   1. Joint Locations:
      a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
      b. Tile control and expansion joints where indicated.
      c. Other joints as indicated on Drawings.
   2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

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SECTION 081113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes hollow-metal work.

1.02 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.03 COORDINATION

A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, temperature-rise ratings, and finishes.

B. Shop Drawings: Include the following:
   1. Elevations of each door type.
   2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
   3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
   4. Locations of reinforcement and preparations for hardware.
   5. Details of each different wall opening condition.
   6. Details of anchorages, joints, field splices, and connections.
   7. Details of accessories.
   8. Details of moldings, removable stops, and glazing.
   9. Details of conduit and preparations for power, signal, and control systems.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.05 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
   1. Provide additional protection to prevent damage to factory-finished units.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- (102-mm-) high wood blocking. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

PART 1 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Ceco Door; ASSA ABLOY.
   2. Curries Company; ASSA ABLOY.
   3. Steelcraft; an Allegion brand.

B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.02 REGULATORY REQUIREMENTS

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
   1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

2.03 INTERIOR DOORS AND FRAMES

A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2.
   1. Physical Performance: Level B according to SDI A250.4.
   2. Doors:
      a. Type: As indicated in the Door and Frame Schedule.
      b. Thickness: 1-3/4 inches (44.5 mm).
      c. Face: Metallic-coated, cold-rolled steel sheet, minimum thickness of 0.042 inch (1.0 mm).
      d. Edge Construction: Model 1, Full Flush.
      e. Core: Vertical steel stiffener with fiberglass between stiffeners
   3. Frames:
      a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch (1.3 mm).
      b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
      c. Construction: Full profile welded.
   4. Exposed Finish: Prime painted.

2.04 FRAME ANCHORS

A. Jamb Anchors:
   1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (51 mm) wide by 10 inches (254 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
   2. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch- (9.5-mm-) diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (1.0 mm), and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch (51-mm) height adjustment. Terminate bottom of frames at finish floor surface.

2.05 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.
   1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

I. Glazing: Comply with requirements in Section 088000 "Glazing."

J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.06 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:
   1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch (0.66 mm), steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches (152 mm) apart. Spot weld to face sheets no more than 5 inches (127 mm) o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
   2. Fire Door Cores: As required to provide fire-protection and temperature-rise ratings indicated.
   3. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches (3.2 mm in 51 mm).
   4. Top Edge Closures: Close top edges of doors with inverted closures, except provide flush closures at exterior doors of same material as face sheets.

5. Bottom Edge Closures: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets.
6. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch (19 mm) beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
4. Jamb Anchors: Provide number and spacing of anchors as follows:
   a. Masonry Type: Locate anchors not more than 16 inches (406 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c., to match coursing, and as follows:
      1) Two anchors per jamb up to 60 inches (1524 mm) high.
      2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
      3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
      4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.
   b. Compression Type: Not less than two anchors in each frame.
   c. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.
5. Head Anchors: Two anchors per head for frames more than 42 inches (1067 mm) wide and mounted in metal-stud partitions.
6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
   a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
   b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.07 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.08 ACCESSORIES

A. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

PART 1 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.03 INSTALLATION

A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

B. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, borrowed lites, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    a. At fire-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
    a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.

4. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
5. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
6. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
    a. Between Door and Frame Jambs and Head: 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3.2 mm) to 1/4 inch (6.3 mm) plus or minus 1/32 inch (0.8 mm).
    c. At Bottom of Door: 3/4 inch (19.1 mm) plus or minus 1/32 inch (0.8 mm).
    d. Between Door Face and Stop: 1/16 inch (1.6 mm) to 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).
2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

3.04 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow-metal work immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 081116
ALUMINUM FRAMES

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights; 2022.

B. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products; 2021.

C. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.

D. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

E. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

F. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

G. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

H. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

I. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).

J. 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 (Reapproved 2023).

K. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Test Report: Certified test reports from qualified independent testing agency indicating doors comply with specified performance requirements.

C. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with not less than five years of documented experience.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver aluminum components in manufacturer's standard protective packaging, palleted, crated, or banded together.

B. Inspect delivered components for damage and replace. Repaired components will not be accepted.

C. Store components in clean, dry, indoor area, under cover in manufacturer's packaging until installation.

D. Protect materials and finish from damage during handling and installation.

1.05 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Aluminum Frames:
   1. Basis of design: Special-Lite Aluminum Thermally Broken Framing System
   2. AG Doors by Condoor; Condor Trimless Aluminum Door: www.condoor.ca/#sle.
   3. Avalon International Aluminum LLC; Eagle Series Door Frames and Sidelights: www.avalonint.com/#sle.
   4. Cline Aluminum Doors, Inc; _____: www.clinedoors.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.

2.02 FRAMES

A. Accessibility: Comply with ICC A117.1 and ADA Standards.

B. Aluminum Frames for Doors, Sidelights, or Transoms: Extruded aluminum, thermally broken hollow or C-shaped sections; no steel components.
   1. Frame Depth: as indicated on drawings.
   2. Finish: Factory Finished Baked Enamel.
   3. Sidelight/Transom Glazing: Refer to Section 088000

C. Dimensions and Shapes: As indicated on drawings; dimensions indicated are nominal.
   1. Provide the following clearances:
      a. Hinge and Lock Stiles: 1/8 inch (3.2 mm).
      b. Between Meeting Stiles: 1/4 inch (6.4 mm).
      c. At Top Rail and Bottom Rail: 1/8 inch (3.2 mm).

2.03 COMPONENTS

A. Frames: Extruded aluminum shapes, not less than 0.062 inch (1.6 mm) thick, reinforced at hinge and strike locations.
   1. Trim: Extruded aluminum, not less than 0.062 inch (1.6 mm) thick, removable snap-in type without exposed fasteners.

2.04 PERFORMANCE REQUIREMENTS

A. Provide door assemblies that have been designed and fabricated in compliance with specified performance requirements.

2.05 MATERIALS

A. Aluminum Sheet: ASTM B209/B209M, alloy 5005, temper H14, stretcher leveled.

B. Extruded Aluminum: ASTM B221 (ASTM B221M), alloy 6063, temper T5, or alloy 6463, temper T5.

2.06 ACCESSORIES

A. Fasteners: Aluminum, non-magnetic stainless steel, or other material warranted by manufacturer as non-corrosive and compatible with aluminum components.

B. Brackets and Reinforcements: Manufacturer's high-strength aluminum units where feasible, otherwise, non-magnetic stainless steel or steel hot-dip galvanized in compliance with ASTM A123/A123M.

C. Bituminous Coating: Cold-applied asphaltic mastic, compounded for 30-mil (0.76 mm) thickness per coat.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that wall surfaces and openings are ready to receive frames and are within tolerances specified in manufacturer's instructions.

3.02 PREPARATION

A. Perform cutting, fitting, forming, drilling, and grinding of frames as required for project conditions.

B. Replace components with damage to exposed finishes.

C. Separate dissimilar metals to prevent electrolytic action between metals.

3.03 INSTALLATION

A. Install frames in accordance with manufacturer's instructions and approved shop drawings.

B. Set frames plumb, square, level, and aligned to receive doors. Anchor frames to adjacent construction in strict accordance with manufacturer's recommendations and within specified tolerances.

C. Where aluminum surfaces contact metals other than stainless steel, zinc, or small areas of white bronze, protect from direct contact by painting dissimilar metal with heavy coating of bituminous paint.

D. Hang doors and adjust hardware to achieve specified clearances and proper door operation.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - BSD Quality Requirements for independent field testing and inspection requirements, and requirements for monitoring quality of specified product installations.

B. Provide field testing of installed aluminum doors by independent laboratory in accordance with AAMA 502 and AAMA/WDMA/CSA 101/I.S.2/A440 during construction process and before installation of interior finishes.

1. Field test for water penetration in accordance with ASTM E1105 using Procedure B - cyclic static air pressure difference; test pressure shall not be less than 1.9 psf (91 Pa).
2. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 6.27 psf (300 Pa).

C. Repair or replace fenestration components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 CLEANING

A. Upon completion of installation, thoroughly clean door and frame surfaces in accordance with AAMA 609 & 610.

B. Do not use abrasive, caustic, or acid cleaning agents.

3.06 PROTECTION

A. Protect products of this section from damage caused by subsequent construction until Date of Substantial Completion.

B. Replace damaged or defective components that cannot be repaired to a condition indistinguishable from undamaged components.

END OF SECTION 081116

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SECTION 083113
ACCESS DOORS AND FRAMES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Access doors and frames for walls and ceilings.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include construction details, fire ratings, materials, individual components and profiles, and finishes.

B. Shop Drawings:
   1. Include plans, elevations, sections, details, and attachments to other work.
   2. Detail fabrication and installation of access doors and frames for each type of substrate.

C. Samples: For each door face material, at least 3 by 5 inches in size, in specified finish.

D. Product Schedule: Provide complete access door and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

PART 2 PRODUCTS

2.01 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Milcor; Commercial Products Group of Hart & Cooley, Inc.

B. Flush Access Doors with Exposed Flanges:
   1. Model M
      a. Assembly Description: Fabricate door to fit flush to frame. Provide exposed frame installation.
      b. Locations: Wall and ceiling.
      c. Door Size: see drawings.
      d. Finish: as selected by Architect
   2. Frame Material: Same material as door.
   3. Hinges: Manufacturer's standard.
   4. Hardware: Cylinder lock

2.02 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Frame Anchors: Same type as door face.

C. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.

2.03 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of supports indicated.
   1. For concealed flanges with drywall bead, provide edge trim for gypsum board and securely attached to perimeter of frames.
   2. Provide mounting holes in frames for attachment of units to metal or wood framing.

D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.
   1. For cylinder locks, furnish two keys per lock and key all locks alike.
   2. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.

2.04 FINISHES

A. Steel and Metallic-Coated-Steel Finishes:
   1. Factory Prime: Apply manufacturer's standard, fast-curing, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates 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.

3.02 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

B. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

3.03 ADJUSTING

A. Adjust doors and hardware, after installation, for proper operation.

B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 083113

SECTION 08 7100 - 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:
   1. Mechanical door hardware for the following:
      a. Swinging doors.
   2. Field verification, preparation, and modification of existing doors and/or frames to receive new hardware.
   3. 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.

B. Related Sections:
   1. Division 08 Section "Hollow Metal Doors and Frames".

1.3 SUBMITTALS

A. Product Data: For each item of hardware 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. 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.

C. Qualification Data: For Installer and Architectural Hardware Consultant.

D. 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.

E. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

F. Warranty: Special warranty specified in this Section.

1.4 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. 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.

G. 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.

H. Keying Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." In addition to Owner**,** Contractor, and Architect, conference participants shall also include Installer's Architectural Hardware Consultant. 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.
   2. Preliminary key system schematic diagram.
   3. Requirements for key control system.
   4. Requirements for access control.
   5. Address for delivery of keys.

I. 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.

1.5 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.

1.6 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. 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.

C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

E. 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.

1.7 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:
      a. Structural failures including excessive deflection, cracking, or breakage.
      b. Faulty operation of doors and door hardware.
      c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

   2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

      a. Exit Devices: Three years from date of Substantial Completion.
      b. Manual Closers: 25 years from date of Substantial Completion.
      c. Lockset: 10 years from date of Substantial Completion.
      d. Continuous Hinges: Lifetime of opening

1.8 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.

B. Maintenance Service: Beginning at Substantial Completion, provide six months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 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.

2.2 HINGES

A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal 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. McKinney Products Company; an ASSA ABLOY Group company.
      b. Stanley Commercial Hardware; Div. of The Stanley Works.
      c. Hager Companies

2.3 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.

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. ABH Manufacturing, Inc.
      b. Select Products, Ltd.
      c. Pemko Mfg. Co; an ASSA ABLOY Group company

2.4 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: Solid forged or cast
   3. Escutcheons (Roses): Wrought
   4. Dummy Trim: Match lever lock trim and escutcheons.

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. Mortise Locks: BHMA A156.3, Grade 1; Series 1000
   1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
      a. Sargent Manufacturing Company; an ASSA ABLOY Group company (to match existing)

G. 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. Sargent Manufacturing Company; an ASSA ABLOY Group company. (to match existing)

2.5 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 ASSY ABLOY Group company
      b. Door Controls International, Inc.
      c. Ives Hardware; an Allegion company.

2.6 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 ASSY ABLOY Group company
      b. Door Controls International, Inc.
      c. Ives Hardware; an Allegion company.

2.7 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. Sargent Manufacturing Company; an ASSA ABLOY Group company.

b. Von Duprin; an Allegion Company
c. Precision Hardware, Inc.; a Dormakaba Holding, Inc. company.

2.8 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.
a. Medeco Assa Keymark (to match existing)

B. Standard Lock Cylinders: BHMA A156.5; Grade 1; permanent cores that are interchangeable; face finished to match lockset.

C. Construction Cores: Provide disposable plastic cores or keyed alike construction cores, if specified, and remove these when directed. Cores shall be painted a color for easy identification (blue, orange, etc.). Provide 10 construction keys and 3 construction control keys for removing temporary cores. Construction cores shall be returned to hardware supplier.

D. Permanent Cores: Provide final permanent cores with visual key control. Stamp keys and (in a concealed location) stamp cores with keyset symbol.

2.9 KEYING

A. Keying System: To continue the existing Medeco Assa Keymark keying system. Incorporate decisions made in keying conference.
1. Master Key System: Change keys and a master key operate cylinders.
2. Grand Master Key System: Change keys, a master key, and a grand master key operate cylinders.
3. Great-Grand Master Key System: Change keys, a master key, a grand master key, and a great-grand master key operate cylinders.
4. Existing System:
a. Master key or grand master key locks to Owner's existing system.
5. Keyed Alike: Key all cylinders to same change key.

B. Keys: Nickel silver.
1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
a. Notation: ‘DUPLICATION PROHIBITED”
2. Quantity: Provide three change keys and quantity of Control Keys, Master Keys and Grand Master Keys as directed by Owner.

2.10 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.

2.11 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. LCN; an Allegion company
   b. Dorma Architectural Hardware; Member of The DORMA Group North America.
   c. Sargent Manufacturing Company; an ASSA ABLOY Group company.

2.12 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.

2.13 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. Architectural Builders Hardware Mfg., Inc.
   c. Rockwood Manufacturing Company.
   d. Sargent Manufacturing Company; an ASSA ABLOY Group company.

2.14 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.

2.15 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.

2.16 METAL PROTECTIVE TRIM UNITS

A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- thick aluminum, brass, bronze or 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.

2.17 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.

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 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.

2.18 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 3 - EXECUTION

3.1 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.

3.2 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."

3.3 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.

C. 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 spec section).Provide wiring as recommended by device manufacturer.

D. 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.

E. Lock Cylinders: Install construction cores, if specified, to secure building and areas during construction period.
   1. Replace construction cores with permanent cores as indicated in keying schedule.

F. Thresholds: Set thresholds for exterior and interior doors in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

G. 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.

H. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

I. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

J. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 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.

3.5 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.

3.6 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 Sets:

ELEMENTARY SCHOOL:

SET 1 - Pair Doors 001-1
REUSE & REINSTALL DOOR HARDWARE

SET 2 - Door 20-1 to have:

3 ea.	hinges T4B3786 US10 4-1/2 x 4-1/2
1 ea.	mortise lockset V20-LB-70-8225 LNL US10
	with occupancy indicator (Vacant/Occupied) & ADA thumb turn
1 ea.	SFIC permanent keyed core Medeco Assa Keymark 612
1 ea.	electric strike HES 1006 x 2005M3 24VDC Fail Seure 612
	x faceplate to prevent the strike release when the deadbolt is extended
1 ea.	automatic door operator ASSA ABLOY top jamb pull side SW100
	x Powder Coat to match US10
1 ea.	surface mount wall actuator switch BEA 10PB451AL (Alternative Logo & Text)
	x surface mount box 10BOX45SQSM (*FOR PUSH SIDE ONLY)*

1 ea. kick plate K1050 10" x 2"LDW .050 US10 B4E CSK
3 ea. silencers 608-RKW
1 ea. walll stop 409 US10
Note: Wire electric strike to output of operator. Operator to be wired to fire alarm system to cut power to operator on fire alarm mode.

MIDDLE SCHOOL:

SET 3 - Door 129-1 to have:
3 ea. hinges T4B3786 US26D 4-1/2 x 4-1/2
1 ea. mortise lockset V20-LB-70-8225 LNL US26D
with occupancy indicator (Vacant/Occupied) & ADA thumb turn
1 ea. SFIC permanent keyed core Medeco Assa Keymark 626
1 ea. electric strike HES 1006 x 2005M3 24VDC Fail Seure 630
x faceplate to prevent the strike release when the deadbolt is extended
1 ea. automatic door operator ASSA ABLOY top jamb push side SW100 AL
2 ea. surface mount wall actuator switch BEA 10PB451AL (Alternative Logo & Text)
x surface mount box 10BOX45SQSM
1 ea. kick plate K1050 10" x 2"LDW .050 US32D B4E CSK
3 ea. silencers 608-RKW
1 ea. walll stop 409 US32D
Note: Wire electric strike to output of operator.

SET 4 - Doors 129-2, 161-2- Ea. to have:
3 ea. hinges TB2714 US26D 4-1/2 x 4-1/2
1 ea. mortise lockset (storeroom) 70-8224 LNL US26D
1 ea. SFIC permanent keyed core Medeco Assa Keymark 626
1 ea. closer (pull side) 4011 MC 689 TBWMS
1 ea. kick plate K1050 10" x 2"LDW .050 US32D B4E CSK
3 ea. silencers 608-RKW
1 ea. floor stop 441 US32D

SET 5 - Doors 129-3, 161-1 - Ea. to have:
3 ea. ball bearings hinges size & weight to match existing frame prep US26D
1 ea. mortise dead lock (classroom) 70-LB-8203 US26D
(Inside thumb turn will retract dead bolt but will not project it.)
Install at new ADA location with centerline of strike at 48"
GC TO DRILL FRAME AT NEW LOCATION FOR DEAD BOLT
1 ea. SFIC permanent keyed core Medeco Assa Keymark 626
1 ea. Don-Jo filler plate prime coat to cover existing strike cutout
1 ea. push plate 70C-RKW CFC 4" x 16" US32D (Cut for Cylinder)
1 ea. 45-degree offset door pull BF161 3/4" Diameter x 10" CTC
1 ea. kick plate K1050 10" x 2"LDW .050 US32D B4E CSK
REUSE & REINSTALL EXISTING HANDICAP AUTOMATIC DOOR OPERATOR

SET 6 - Door 129-4 to have:

3 ea.	hinges T4B3386 US32D 4-1/2 x 4-1/2
1 ea.	mortise lockset V20-LB-70-8225 LNL US26D with occupancy indicator (Vacant/Occupied) & ADA thumb turn
1 ea.	SFIC permanent keyed core Medeco Assa Keymark 626
1 ea.	closer (push side stop arm) 4111CUSH MC 689 TBWMS
1 ea.	kick plate K1050 10" x 2"LDW .050 US32D B4E CSK
3 ea.	silencers 608-RKW
1 ea.	aluminum cover plate 14/1A - 1/4"H x 9"W x MS10SS/WS10SS

END OF SECTION 08 7100

SECTION 088000
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Insulating glass units.

B. Glazing units.

C. Glass coatings.

D. Glazing compounds.

1.02 RELATED REQUIREMENTS

A. Section 081116: Aluminum Frames

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 (Reaffirmed 2020).

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; 2021a.

J. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

K. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

L. GANA (GM) - GANA Glazing Manual; 2022.

M. GANA (SM) - GANA Sealant Manual; 2008.

N. GANA (LGRM) - Laminated Glazing Reference Manual; 2019.

O. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (Reaffirmed 2016).

P. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

Q. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

R. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

S. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 SUBMITTALS

A. See Section 013300 - 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 (___ by ___ mm) 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.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods.

B. All interior glazing sizes and types shall comply with NFPA 80 and/or ASTM E119.

C. 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).

D. 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.

1.06 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F (4 degrees C).

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.07 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. Glass Fabricators:
   1. Basis-of-Design-Guardian Glass, LLC
   2. Viracon, Inc: www.viracon.com/#sle.

B. Equivalents: Approved Equal.

C. Float Glass Manufacturers:
   1. Guardian Glass, LLC: www.guardianglass.com/#sle.
   2. Pilkington North America Inc: www.pilkington.com/na/#sle.
   3. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
   4. Equivalent: Approved Equal.

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
   1. Design Pressure: Calculated in accordance with ASCE 7.
   2. Comply with ASTM E1300 for design load resistance of glass type, thickness, 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
   4. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
   5. Glass thicknesses listed are minimum.

B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.
   1. In conjunction with weather barrier related materials described in other sections, as follows:
      a. Air Barriers: See Section 072700.
   2. To maintain a continuous vapor retarder and/or air barrier throughout glazed assembly from glass pane to heel bead of glazing sealant.

C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
   1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
   2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
   3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.
   1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
   2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
   3. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
   4. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.

5. Heat-Soak Testing (HST): Provide HST of fully tempered glass used on canopy, point-supported, spider wall, high-risk, sloping overhead, horizontal overhead, free-standing glass protective barrier, or other demanding applications of project, to reduce risks of spontaneous breakage due to nickel sulfide (NiS) induced fractures in accordance with industry established testing requirements.
6. Tinted Type: ASTM C1036, Class 2 - Tinted, Quality - Q3, with color and performance characteristics as indicated.
7. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

2.04 INSULATING GLASS UNITS

A. Manufacturers:
1. Guardian Glass, LLC; Basis of Design: www.guardianglass.com/#sle.
2. Pilkington North America Inc: www.pilkington.com/na/#sle.Pilkington North America Inc: www.pilkington.com/na/#sle.
3. Viracon, Apogee Enterprises, Inc: www.viracon.com/#sle.
4. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
5. Equivalent: Approved equal.

B. Fabricator: Certified by glass manufacturer for type of glass, coating, and treatment involved and capable of providing specified warranty.

C. Insulating Glass Units: Types as indicated.
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or 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.
5. Edge Seal:
   a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
   b. Color: Black.
6. Purge interpane space with dry air, hermetically sealed.

D. Type G1 - Insulating Glass Units: Vision glass, double glazed.
1. Applications: Exterior glazing where indicated on drawings.
2. Space between lites filled with argon.
3. Outboard Lite: Annealed float glass, 1/4 inch (6.4 mm) thick, minimum.
4. Coating on second : Basis of Design: Guardian Glass Sunguard SNX 51/23
   a. Tint: Clear.
   b. Coating: Sunguard SNX 51/23, on #2 surface.
5. Metal edge spacer.
6. Inboard Lite: Annealed float glass, 1/4 inch (6.4 mm) thick, minimum.
   a. Tint: Clear.
7. Total Thickness: 1 inch (25.4 mm).
8. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.27, nominal.
9. Visible Light Transmittance (VLT): 51% percent, nominal.
10. Solar Heat Gain Coefficient (SHGC): .23, nominal.
11. Visible Light Reflectance, Outside: 14% percent, nominal.

12. Glazing Method: Dry glazing method, gasket glazing.

E. Type G2 - Insulating Glass Units: Spandrel glazing.
   1. Applications: Exterior spandrel glazing unless otherwise indicated.
   2. Space between lites filled with air.
   3. Outboard Lite: Heat-strengthened float glass, 1/4 inch (6.4 mm) thick, minimum.
      a. Tint: Clear.
      b. Coating: Same as on vision units, on #2 surface.
   4. Metal edge spacer.
   5. Inboard Lite: Heat-strengthened float glass, 1/4 inch (6.4 mm) thick.
      a. Tint: Clear.
      b. Opacifier: Ceramic frit, on #4 surface.
         1) Opacifier Color: to be selected from manufacturer's standard range..
   6. Total Thickness: 1 inch (25.4 mm).

2.05 GLASS COATINGS

A. Opacifying Coating: One component, water-based silicone elastomeric opaque color coating for roll coat and spray applications.
   1. Application: Exterior spandrel location as indicated on drawings.
      a. Glass and Coating Orientation at Spandrels: On surface facing interior.
   2. Fabrication of Glass Unit with Coating: Solely by Approved Factory Fabricators trained and certified annually by coating manufacturer.
   3. Color: Selected from manufacturer's standard range.
   4. Products:
      a. ICD High Performance Coatings; OPACI-COAT-300: www.icdcoatings.com/#sle.
      b. Equival

2.06 GLAZING COMPOUNDS

A. Glazing Putty: Polymer modified latex recommended by manufacturer for outdoor use, knife grade consistency; gray color.

B. Butyl Sealant: Single component; ASTM C920 Grade NS, Class 12-1/2, Uses M and A, Shore A hardness of 10 to 20; black color.

C. Polysulfide Sealant: Two component; chemical curing, nonsagging type; ASTM C920 Type M, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.

D. Polyurethane Sealant: Single component, chemical curing, nonstaining, nonbleeding; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 20 to 35; color as selected.

E. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; nonbleeding, nonstaining; 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.

F. Manufacturers:
   1. BASF Corporation: www.basf.com/#sle.
   2. Bostik Inc: www.bostik-us.com/#sle.
   3. Dow Corning Corporation: www.dowcorning.com/construction/#sle.Dow Corning Corporation: www.dowcorning.com/construction/#sle.
   4. Pecora Corporation: www.pecora.com/#sle.
   5. Tremco Commercial Sealants & Waterproofing; Proglaze SSG: www.tremcosealants.com/#sle.

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 (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) by width of glazing rabbet space minus 1/16 inch (1.5 mm) 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 (75 mm) 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.
   4. Manufacturers:
      a. Pecora Corporation: www.pecora.com/#sle.
      b. Tremco Global Sealants: www.tremcosealants.com/#sle.
      c. Equivalent: Approved equal.

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.

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 (152 mm) 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.

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 (152 mm) 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 (1.6 mm) above sight line.

C. Place setting blocks at 1/4 points with edge block no more than 6 inch (152 mm) 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 (610 mm) intervals, 1/4 inch (6.4 mm) 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 (9 mm) 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/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 (5 mm) 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 (152 mm) 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.

F. Install removable stops, with spacer strips inserted between glazing and applied stops 1/4 inch (6.4 mm) 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 (9 mm) 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.

3.09 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 (1.6 mm) above sight line.

C. Place setting blocks at 1/4 points with edge block no more than 6 inch (152 mm) 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 (610 mm) intervals, 1/4 inch (6 mm) 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.

3.10 INSTALLATION - BUTT JOINT GLAZING METHOD (SEALANT ONLY)

A. Application - Interior Glazed: Set glazing infills from exterior side of building.

B. Temporarily brace glass in position for duration of glazing process; mask edges of glass at adjoining glass edges and between glass edges and framing members.

C. Temporarily secure a small diameter nonadhering foamed rod on back side of joint.

D. Apply sealant to open side of joint in continuous operation; thoroughly fill joint without displacing foam rod, and then tool sealant surface smooth to concave profile.

E. Permit sealant to cure then remove foam backer rod, and then apply sealant to opposite side, tool smooth to concave profile.

F. Remove masking tape.

3.11 FIELD QUALITY CONTROL

A. See Section 014000 - BSD 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 nonpermanent 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 088000

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SECTION 090561
COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
   1. Resilient tile.
   2. Thin-set ceramic tile.

B. Removal of existing floor coverings.

C. Preparation of new and existing concrete floor slabs for installation of floor coverings.

D. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
   1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.

E. Patching compound.

F. Remedial floor coatings.

1.02 RELATED REQUIREMENTS

A. Section 012100 - Allowances

B. Section 014000 - BSD Quality Requirements: Additional requirements relating to testing agencies and testing.

C. Section 028000 - Facility Remediation: Asbestos, Lead, and other harmful material removal procedures.

D. Section 033000 - Cast-in-Place Concrete: Moisture emission reducing curing and sealing compound for slabs to receive adhered flooring, to prevent moisture content-related flooring failures; to remain in place, not to be removed.

1.03 PRICE AND PAYMENT PROCEDURES

A. Unit Price for Remedial Floor Coating or Sheet Membrane: Do not include the cost of the floor coating or underlayment in the base bid; state on the bid form the unit price per square foot (square meter) for the floor coating or underlayment, installed, in the event such remediation is required.
   1. Base the unit price on a total quantity calculated by assuming that only 50 percent of the flooring will require the alternate adhesive.

1.04 REFERENCE STANDARDS

A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2020a.

B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 2020.

C. ASTM D4259 - Standard Practice for Preparation of Concrete by Abrasion Prior to Coating Application; 2018.

D. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

E. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2011.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.06 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Visual Observation Report: For existing floor coverings to be removed.

C. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
   1. Moisture and alkalinity (pH) limits and test methods.
   2. Manufacturer's required bond/compatibility test procedure.

D. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.
   1. Manufacturer's qualification statement.
   2. Certificate: Manufacturer's certification of compatibility with types of flooring applied over remedial product.
   3. Test reports indicating compliance with specified performance requirements, performed by nationally recognized independent testing agency.
   4. Manufacturer's installation instructions.
   5. Specimen Warranty: Copy of warranty to be issued by coating manufacturer and certificate of underwriter's coverage of warranty.

E. Testing Agency's Report:
   1. Description of areas tested; include floor plans and photographs if helpful.
   2. Summary of conditions encountered.
   3. Moisture and alkalinity (pH) test reports.
   4. Copies of specified test methods.
   5. Recommendations for remediation of unsatisfactory surfaces.
   6. Product data for recommended remedial coating.
   7. Submit report directly to Owner.
   8. Submit report not more than two business days after conclusion of testing.

F. Adhesive Bond and Compatibility Test Report.

G. Copy of RFCI (RWP).

1.07 QUALITY ASSURANCE

A. Moisture and alkalinity (pH) testing will be performed by an independent testing agency employed and paid by Owner.

B. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.

1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.

C. Contractor's Responsibility Relating to Independent Agency Testing:
1. Provide access for and cooperate with testing agency.
2. Confirm date of start of testing at least 10 days prior to actual start.
3. Allow at least 4 business days on site for testing agency activities.
4. Achieve and maintain specified ambient conditions.
5. Notify Owner when specified ambient conditions have been achieved and when testing will start.

D. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer’s instructions and recommendations.

B. Deliver materials in manufacturer’s packaging; include installation instructions.

C. Keep materials from freezing.

1.09 FIELD CONDITIONS

A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F (18 degrees C) or more than 85 degrees F (30 degrees C).

B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Source Limitations: Obtain specified products from single source and from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
2. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
3. Products:
a. ARDEX Engineered Cements; ARDEX Feather Finish: www.ardexamericas.com/#sle.

b. CMP; Level-1, Self Leveling Underlayment: www.cmpsp.com/#sle.
c. Laticrete; NXT LEVEL Cement Based Underlayment: www.laticrete.com/#sle
d. Substitutions: See Section 016000 - Product Requirements.

D. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
1. Thickness: As required for application and in accordance with manufacturer's installation instructions.
2. Products:
a. ARDEX Engineered Cements; ARDEX MC RAPID: www.ardexamericas.com/#sle.
b. LATICRETE International, Inc; LATICRETE NXT Vapor Reduction Coating with LATICRETE NXT Level Plus: www.laticrete.com/#sle.
c. Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 CONCRETE SLAB PREPARATION

A. Follow recommendations of testing agency.

B. Perform following operations in the order indicated:
1. Existing concrete slabs (on-grade and elevated) with existing floor coverings:
a. Visual observation of existing floor covering, for adhesion, water damage, alkaline deposits, and other defects.
b. Removal of existing floor covering.
2. New and existing concrete slabs:
a. Preliminary cleaning.
b. Moisture vapor emission tests by others; 3 tests in the first 1000 square feet (100 square meters) and one test in each additional 1000 square feet (100 square meters), unless otherwise indicated or required by flooring manufacturer.
c. Internal relative humidity tests by others; in same locations as moisture vapor emission tests, unless otherwise indicated.
d. Alkalinity (pH) tests by others; in same locations as moisture vapor emission tests, unless otherwise indicated.
e. Specified remediation, if required.
f. Patching, smoothing, and leveling, as required.
g. Other preparation specified.
h. Adhesive bond and compatibility test.
i. Protection.

C. Remediations:
1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating or remedial sheet membrane over entire suspect floor area.

3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

3.02 REMOVAL OF EXISTING FLOOR COVERINGS

A. Comply with local, State, and federal regulations and recommendations of RFCI (RWP), as applicable to floor covering being removed.

B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

C. Comply with Asbestos Removal Specification Section 028200.

3.03 PRELIMINARY CLEANING

A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.

B. Do not use solvents or other chemicals for cleaning.

3.04 PREPARATION

A. See individual floor covering section(s) for additional requirements.

B. Comply with recommendations of testing agency.

C. Comply with requirements and recommendations of floor covering manufacturer.

D. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.

E. Do not fill expansion joints, isolation joints, or other moving joints.

3.05 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.06 APPLICATION OF REMEDIAL FLOOR COATING

A. Comply with requirements and recommendations of coating manufacturer.

B. Furnish and install floor coating throughout the entire slab scheduled to recieve new flooring.

3.07 PROTECTION

A. Cover prepared floors with building paper or other durable covering.

END OF SECTION 090561

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SECTION 092116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal stud wall framing.

B. Metal channel ceiling framing.

C. Cementitious backing board.

D. Gypsum wallboard.

E. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Wood blocking product and execution requirements.

B. Section 078400 - Firestopping: Top-of-wall assemblies at fire-resistance-rated walls.

C. Section 079200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

D. 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 (Reapproved 2022).

D. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2018.

E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2017.

F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.

G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2020.

H. 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; 2022.

I. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.

J. ASTM C1325 - Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units; 2019.

K. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.

L. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

M. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.

N. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).

O. ASTM E413 - Classification for Rating Sound Insulation; 2016.

P. GA-600 - Fire Resistance and Sound Control Design Manual; 2021.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

D. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

E. Manufacturers Safety and Data Sheets (MSDS) for all products used.

F. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.

B. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of documented experience.

1.06 REGULATORY REQUIREMENTS

A. Industry Standards
   1. Comply with applicable requirements of ASTM C 840, except where more detailed or more stringent requirements are indicated, including the recommendations of the manufacturer.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

2.02 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. Georgia-Pacific Gypsum: www.gpgypsum.com.
   2. National Gypsum Company: www.nationalgypsum.com.
   3. USG Corporation: www.usg.com.
   4. 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. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
      a. Mold resistant board is required at all locations.
   3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
   4. Thickness:
      a. Vertical Surfaces: 5/8 inch (16 mm).
      b. Ceilings: 5/8 inch (16 mm).
   5. Mold Resistant Paper Faced Products: toilet rooms:

a. National Gypsum Company; Gold Bond Hi-Abuse Brand XP Wallboard.
b. USG Corporation; Sheetrock Brand Mold Tough AR & Firecode Gypsum Panels.
c. Substitutions: See Section 016000 - Product Requirements.

C. Backing Board For Wet Areas:
1. Application: Surfaces behind tile in wet areas inc.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. 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: ___ inch (___ mm).
b. Products:
1) Custom Building Products: www.custombuildingproducts.com/#sle.
2) National Gypsum Company: www.nationalgypsum.com.
3) USG Corporation: www.usg.com/#sle.
4) Substitutions: See Section 016000 - Product Requirements.

2.03 GYPSUM WALLBOARD ACCESSORIES

A. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
1. Concealed acoustic sealant: comply with ASTM C 919, nonstaining, nonbleeding, gunnable sealant.
2. Exposed acoustic sealant: Comply with ASTM C834, non oxidizing, skinnable, paintable, gunnable, sealant for exposed applications, either latex or acrylic based type.

C. Flexible Closures: For non fire rated work, for filling gaps between steel deck flutes and tops of partitions. Closures shall be fabricated to conform to the profile of the deck. Closed cell EPDM rubber, with adhesive. Houston Foam Plastics, Houston TX 800-231-1752.

D. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
1. Types: As detailed or required for finished appearance, provide level 5 finish. Metal trim shall be formed of galvanized or zinc coated steel. Provide paper faced metal trim where recommended by manufacturer.
2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.
3. Provide corner reinforcement for all outside corners.
a. Sheetrock Brand paper faced metal outside corner, tape-on-bead, model B1W USG
b. Where covered by thinset ceramic tile, provide B1W-NB

E. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions, and to meet fire resistance requirements where applicable.
1. Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners, except as otherwise indicated. For use with mold and moisture resistant paper faced and glass mat faced gypsum board panels.
2. For tile backer board, provide manufacturers recommended fillers, tapes and other materials.

F. Screws: ASTM C 1002; self-piercing tapping type.

1. For fastening the gypsum board in place, specifically designed for use with power driven tools, of length recommended for application in board manufacturers printed instructions, but not less than 1-1/4" long, with self tapping threads and self drilling points. Screws shall be steel with rust inhibitive coating.

G. 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 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
   1. Level ceiling system to a tolerance of 1/1200.
   2. Laterally brace entire suspension system.

C. Studs: Space studs at 16 inches on center (at 400 mm on center), unless otherwise noted.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.
   2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
   3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

E. Where framing is in contact with an exterior masonry wall, install asphalt felt protection strip between metal and masonry.

F. Blocking: Install wood blocking for support of:
   1. Framed openings.
   2. Wall mounted cabinets.
   3. Plumbing fixtures.
   4. Wall mounted door hardware.

G. Horizontal Bracing or Stiffener Installations: Install metal stud bracing fastened to inside of stud with webs in a horizontal position. Space bridging 4 feet on center maximum unless otherwise indicated. Provide additional bracing as recommended by manufacturer.

H. Chase Wall Erection: Attach to concrete floor slab with concrete stub nails or power driven anchors at 24" o.c. max., and to structure above in a similar fashion. NOTE: It is the responsibility of the Contractor anchoring the runners to ensure that the concrete below the runner will hold the fasteners. Crumbling or deteriorated concrete must be removed and replaced prior to installation of the fasteners.
   1. Position steel studs vertically in runners, 16" o.c. max. with flanges in the same direction, and with studs on opposite sides of chase directly across from each other. Anchor all studs to floor and ceiling runners with fastener tool.

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 Non-Rated: Install gypsum board perpendicular to framing, with ends and edges occurring over firm bearing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

E. Cementitious Backing Board: Install over where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

F. 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.

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.
   2. At exterior soffits, not more than 30 feet (10 meters) apart in both directions.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.05 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
   3. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.

B. Finish all gypsum board in accordance with ASTM C 840 Level 4.

C. 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).
   2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.

D. 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. Do not exceed 1/16" variation between planes or abutting edges or ends. Shim as required to comply with specified tolerances.

B. For soffits and ceilings, verify that direct suspension system has been installed properly, that main runners are space evenly and have been leveled to a tolerance of 1/8" in 12 feet measured both lengthwise on each runner and transversely between parallel runners so that furring member installation may proceed accurately.

END OF SECTION 092116

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SECTION 093000
TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

C. Tile for shower receptors.

D. Cementitious backer board as tile substrate.

E. Stone thresholds.

F. Ceramic accessories.

G. Ceramic trim.

H. Non-ceramic trim.

1.02 RELATED REQUIREMENTS

A. Section 071400 - Fluid-Applied Waterproofing.

B. Section 079200 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.

C. Section 090561 - COMMON WORK RESULTS FOR FLOORING PREPARATION: Concrete slab moisture and alkalinity testing and remediation procedures.

D. Section 092116 - Gypsum Board Assemblies: Tile backer board.

E. 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 - Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.

D. ANSI A108.1c - Contractor's 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 Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.

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 Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive; 2023.

G. ANSI A108.5 - Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar; 2023.

H. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy; 2023.

I. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2019).

J. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2023.

K. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2017 (Reaffirmed 2022).

L. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2018.

M. ANSI A108.12 - Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Modified Dry-Set Mortar; 2023.

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 Specification for Bonded Sound Reduction Membranes for Thin-Set Ceramic Tile Installation; 2014 (Reaffirmed 2019).

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; 2022.

CC. ANSI A137.2 - American National Standard Specifications for Glass Tile; 2013.

DD. ANSI A137.3 - American National Standard Specifications for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs; 2021.

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).

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 SUBMITTALS

A. See Section 013300 - Submittal Procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Samples: Full-size samples of each type of tile, trim and accessory for each color and finish required.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Master Grade Certificate: Submit for each type of tile, signed by the tile manufacturer and tile installer.

F. 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.

G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.

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 Tile: 5 percent of each size, color, and surface finish combination, but not less than one full box of each type.

1.05 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).

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not install solvent-based products in an unventilated environment.

B. Maintain ambient and substrate temperature above 50 degrees F (10 degrees C) and below 100 degrees F (38 degrees C) during installation and curing of setting materials.

PART 2 PRODUCTS

2.01 TILE

A. Refer to Interior Finish Schedule 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: 1 by 1 inch (25 by 25 mm), nominal.
   3. Shape: Square.
   4. Surface Finish: Unglazed.
   5. Color(s): As indicated on drawings.
   6. Mounted Sheet Size: 12 by 24 inches (30.48 by 60.96 cm).
   7. Products:
      a. Dal-Tile Corporation; Keystones: www.daltile.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

D. Glazed Wall Tile, Type TW-, TW-2, TW-3: ANSI A137.1 standard grade.
   1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
   2. Size: As indicated on drawings
   3. Surface Finish: As indicated on drawings .
   4. Color(s): As indicated on drawings.
   5. Pattern: As indicated on drawings..
   6. Trim Units: Matching cove shapes in sizes coordinated with field tile.
   7. Products:
      a. American Olean; Color Story Wall: www.americanolean.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

2.02 TRIM AND ACCESSORIES

A. Ceramic Trim: Matching cove base 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.

B. Non-Ceramic Trim and acessories: 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 follwing:
      a. Open edges of wall tile.
      b. Open edges of floor tile.
      c. Wall corners, outside
      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. Basis of Design
      b. Substitutions: See Section 016000 - Product Requirements.

C. Thresholds: 4 inches (___ mm) wide by full width of wall or frame opening; beveled edge on both long edges; without holes, cracks, or open seams.

D. Shape to comply with ADA
   1. Thickness: 1/2 inch (12.7 mm).
   2. Material: Marble, honed finish.
   3. 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 coat- for all products larger than 15".
   2. Products:
      a. LATICRETE International, Inc; TRI-LITE: 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. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.
   1. Applications: Use this type at all shower locations.

2. Products:
    a. LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive: www.laticrete.com/#sle.
    b. Substitutions: See Section 016000 - Product Requirements.

F. 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; _____: 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 .
2. Use sanded grout for joints 1/8 inch (3.2 mm) wide and larger; use unsanded grout for joints less than 1/8 inch (3.2 mm) wide.
3. Color(s): As indicated on drawings.
4. Products:
    a. Custom Building Product: Prism Ultimate Performance Grout www.custombuildingproducts.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.

B. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
1. Composition: Water-based colorless silicone.
2. Products:
    a. STONETECH, a Division of LATICRETE International, Inc; STONETECH Heavy Duty Grout Sealer: www.laticrete.com/#sle.
    b. Substitutions: See Section 016000 - Product Requirements.

C. Tile Sealer: Stain protection for ceramic tile and natural stone tile.

1. Products:
    a. STONETECH, a Division of LATICRETE International, Inc; STONETECH BulletProof Stone Sealer: 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 (3.2 mm) gap, minimum.
    2. Fluid or Trowel Applied Type:
        a. Thickness: Mils as per manufacturer..
        b. Products:
            1) LATICRETE International, Inc; LATICRETE FRACTURE BAN SC: 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 (1.6 mm) gap, minimum; comply with ANSI A118.12.
    2. Fluid or Trowel Applied Type:
        a. Thickness: Per Manufacturer mils (____ mm), 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. Waterproofing Membrane at Showers and Tiled Tubs: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
    1. Fluid or Trowel Applied Type
        a. Thickness: 25 mils (0.6 mm), minimum, dry film thickness.
        b. Products:
            1) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.
            2) Substitutions: See Section 016000 - Product Requirements.

D. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 7/16 inch (11 mm) thick; 2 inch (51 mm) 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.

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.

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. Refer to drawings for grout types and locations.

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, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
   1. Use uncoupling membrane under all tile unless other underlayment is indicated.
   2. Where waterproofing membrane at wet locations, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.
   3. Where epoxy bond coat and grout are indicated, install in accordance with TCNA (HB) Method F131.

B. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

3.05 INSTALLATION - FLOORS - MORTAR BED METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F111, with cleavage membrane, unless otherwise indicated.
   1. Where waterproofing membrane is indicated, with standard grout or no mention of grout type, install in accordance with TCNA (HB) Method F121.
   2. Where epoxy bond coat and grout are indicated, install in accordance with TCNA (HB) Method F132, bonded.
   3. Where epoxy or furan grout is indicated, but not epoxy or furan bond coat, install in accordance with TCNA (HB) Method F114, with cleavage membrane.

B. Cleavage Membrane: Lap edges and ends.

C. Waterproofing Membrane: Install as recommended by manufacturer and as specified in the section in which the product is specified.

D. Mortar Bed Thickness: 5/8 inch (15.9 mm), unless otherwise indicated.

3.06 INSTALLATION - SHOWERS AND BATHTUB WALLS

A. At tiled shower receptors install in accordance with TCNA (HB) Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.

B. Grout with epoxy grout as specified above. .

3.07 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.

3.08 CLEANING

A. Clean tile and grout surfaces.

3.09 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION 093000

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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 016116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 07 92 00 - Joint Sealants

C. Division 23 - Mechanical Systems- Air outlets and Inlets.

D. Division 26 -Electrical Systems, Wiring and Raceways: Interior Lighting

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. 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 A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.

C. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2022.

D. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2017.

E. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.

F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.

G. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2020.

H. 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; 2022.

I. ASTM E795 - Standard Practices for Mounting Test Specimens during Sound Absorption Tests; 2023.

J. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2022.

K. ASTM E1414/E1414M - Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum; 2021a.

L. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2019.

M. UL (FRD) - Fire Resistance Directory; Current Edition.

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 (____by____ mm) in size illustrating material and finish of acoustical units.

E. Samples: Submit two samples each, 6 inches (152 mm) long, of suspension system main runner, cross runner, and perimeter molding.

F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

G. Manufacturer's Qualification Statement.

H. Manufacturer's Warranty on suspension system components and acoustical units.

I. 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: One box of each type of ceiling specified..

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 (16 degrees C), and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acoustic Tiles: Type [ACT]; **Basis of Design: Armstrong World Industries; Refer to drawing I000 Finish Schedule**
   1. Substitutions: See Section 016000-Product Requirements
      a. CertainTeed Corporation; www.certainteed.com/#sle.
      b. USG Corporation; www.usg.com/ceilings/#sle.

B. Suspension Systems: **Basis of Design: Armstrong World Industries; Refer to drawing I000 Finish Schedule**
   1. Substitutions: See Section 016000-Product Requirements.
      a. CertainTeed Corporation; www.certainteed.com/#sle.
      b. USG Corporation; www.usg.com/ceilings/#sle.

2.02 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Rating: Determined in accordance with test procedures in ASTM E119.

B. Seismic Performance: Ceiling systems designed to withstand the effects of earthquake motions determined according to ASCE 7 for Seismic Design Category D, E, or F and complying with the following:
   1. Local authorities having jurisdiction.

2.03 ACOUSTICAL UNITS

A. Acoustical Units - General: ASTM E1264, Class A- see Finish Schedule.

B. Acoustical Panels**(ACT-1)**, **Refer to drawing I000 Finish Schedule:** Wet-formed mineral fiber with factory-applied latex paint, with the following characteristics:
   1. Classification: ASTM E1264 Type III.
      a. Form: 2, water felted.
      b. Pattern: "C" - Perforated, small holes and "E" - lightly textured. .
   2. Size: As indicated on I000 Finish Schedule.
   3. Thickness: 3/4 inch (19 mm).
   4. Light Reflectance: .82 percent, determined in accordance with ASTM E1264.
   5. NRC Range: .70 min , determined in accordance with ASTM E1264.
   6. Ceiling Attenuation Class (CAC): 35min, determined in accordance with ASTM E1264.
   7. Tile Edge: Angled Tegular
   8. Color: White.
   9. Suspension System: Exposed grid.
   10. Products: **Basis of Design; Refer to drawing I000 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 with aluminum cap.
   1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
   2. Profile: Tee; 15/16 inch (24 mm) face width.
   3. Finish: Baked enamel.
   4. Color: White.
   5. Products: **Basis of Design:**
      a. Armstrong World Industries, Inc; Prelude XL Suspension System: www.armstrongceilings.com/#sle..
      b. Substitutions: See Section 016000 - Product Requirements.

C. Enclosure for Recessed Ceiling Fixtures: Mineral fiber insulation box enclosure with foil facing on exterior side for placement over recessed ceiling light fixture; flame spread index of 25 and smoke development index of 0 (zero) when tested in accordance with ASTM E84.
   1. Light Fixture Size: As indicated on drawings.

2.05 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Hanger Wire: 12-gage 0.08 inch (2 mm) galvanized steel wire.

C. Hold-Down Clips: Manufacturer's standard clips to suit application.

D. Seismic Clips: Manufacturer's standard clips for seismic conditions and to suit application.

E. 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. Acoustical Sealant For Perimeter Moldings: Non-hardening, non-skinning, for use in conjunction with suspended ceiling system.

F. Acoustical Sealant: for Perimeter Molding: Non-hardening, non-skinning. for use in conjucntion with suspended ceiling system as required.

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.
   2. Overlap and rivet corners.

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. Comply with International Building code for seismic Catagory B.

G. Comply with CISCA "Guidelines for Seismic Restraint of Direct-HungSuspended Ceiling Assemblies: Seismin Zones 0-2".

H. 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.

I. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

J. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.

K. 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. Make field cut edges of same profile as factory edges.

F. Where round obstructions occur, provide preformed closures to match perimeter molding.

G. Install hold-down clips on each panel to retain panels tight to grid system; comply with fire rating requirements.

3.05 ADJUSTING AND CLEANING

A. Replace damaged and broken units.

B. Clean exposed surfaces of ceilings units, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.06 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION 095100

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SECTION 096500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Resilient stair accessories.

D. 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 E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2019a, with Editorial Revision (2020).

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

C. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2018).

D. ASTM F1344 - Standard Specification for Rubber Floor Tile; 2015.

E. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile; 2020.

F. ASTM F1861 - Standard Specification for Resilient Wall Base; 2016.

G. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a.

H. ASTM F2169 - Standard Specification for Resilient Stair Treads; 2015, with Editorial Revision (2016).

I. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

J. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2019.

K. 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. Warranty: Provide manufacturers writte warranty for each product specified.

D. Verification Samples: Submit two full-sized samples, illustrating color and pattern for each resilient flooring product specified.

E. Verifiation Samples: Submit two samples, 3 inch long minimum, illustrating color and profile for each resilient wall base and accessory product specified.

F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.

G. Manufacturer's Qualification Statement.

H. Installer's Qualification Statement.

I. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

J. 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, but no less then one box. (_____ square meters)
   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, but no less than one full tread.

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.

C. Testing Agency Qualifications: Independent firm specializing in performing concrete slab moisture testing and inspections of the type specified in this section.

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 (13 degrees C) and 90 degrees F (72 degrees C).

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 (21 degrees C) to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F (13 degrees C).

PART 2 PRODUCTS

2.01 TILE FLOORING

A. Vinyl Composition Tile - Type VCT: Homogeneous, with color extending throughout thickness.
   1. Manufacturers: **Basis of Design:Refer to drawing I000 Finish Schedule.**
      a. Substitutions: See Section 016000 - Product Requirements.

2. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
4. Size: 12 by 12 inch (305 by 305 mm).
5. Thickness: 0.125 inch (3.2 mm).
6. Pattern: As indicated on drawings.
7. Color: As indicated on drawings.

B. Vinyl Tile - Type LVT: Printed film type, with transparent or translucent wear layer; composite structure.
1. Manufacturers: **Basis of Design: Refer to drawing I000 Finish Schedule.**
   a. Substitutions: See Section 016000 - Product Requirements.
2. Minimum Requirements: Comply with ASTM F1700, Class III, Type B.
3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648.
4. Chemical Resistance: Passes, when tested in accordance with ASTM F925.
5. Plank Size: As indicated on drawings.
6. Wear Layer Thickness: 22 mil.
7. Total Thickness: 197 inch (____ mm)
8. Edge Treatment: Square
9. Finish: Proguard Protective Finish
10. Pattern: As indicated on drawings.
11. Color: As indicated on drawings.
12. Warranty: Limited 15-year warranty.

C. Rubber Tile - Type RT: Homogeneous, color and pattern throughout thickness.
1. Manufacturers: **Basis of Design: Refer to drawing I000 Finish Schedule.**
2. Minimum Requirements: Comply with ASTM F1344, of Class corresponding to type specified.
3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
4. Size: As indicated on drawings nominal.
5. Total Thickness: 0.125 inch (3.2 mm). (3.5mm)
6. Texture: Hammered.
7. Pattern: As indicated on drawings. .
8. Color: As indicated on drawings.
9. Warranty: Limited 5-year warranty.

2.02 STAIR COVERING

A. Stair Treads with Integral Risers: Rubber; full height of riser, full width and depth of tread in one piece; tapered thickness.
1. Manufacturers: **Basis of Design: Refer to drawing I000 Finish Schedule.**
2. Minimum Requirements: Comply with ASTM F2169, Type TS, Class 1 & 2, rubber, vulcanized thermoset.
3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
4. Nominal Thickness: .125 inch (____ mm). (5mm)
5. Nosing: Square.
6. Striping: 2 inch (24 mm) wide contrasting color abrasive strips.
7. Tread Texture: As indicated on drawings .

8. Color: As indicated on drawings.
9. Warranty: Limited 10-year warranty.

2.03 RESILIENT BASE

A. Resilient Base - Type RB-1: ASTM F1861, Type TP, rubber, thermoplastic; style as scheduled
   1. Manufacturers: **Basis of Design: Refer to drawing I000 Finish Schedule.**
      a. Substitutions: See Section 016000 - Product Requirements.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
   3. Height: 4 inch (100 mm).
   4. Thickness: 0.125 inch (3.2 mm).
   5. Finish: Satin.
   6. Length: Roll.
   7. Color: As indicated on drawings.
   8. Accessories: Premolded external corners and internal corners, as available by manufacturer.

2.04 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.
   1. VOC Content Limits: As specified in Section 016116.

C. Adhesive for Vinyl Flooring:
   1. Types recommended by flooring manufacturers.
   2. Adhesive for Vinyl and Rubber Flooring:
      a. Types recommended by flooring manufacturers.

D. Transition and Edge Strips: Metal.
   1. Manufacturers: Basis of Design: Schluter Systems, Refer to drawing I000 Finish Schedule.

E. Filler for Coved Base: Plastic.

F. Sealer: Types recommended by flooring manufacturer, as appropriate per flooring material type.

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 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 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 for installation of flooring in accordance with Section 090561.

C. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

D. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

E. Prohibit traffic until filler is fully cured.

F. Clean substrate.

G. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

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. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

E. 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.

F. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

G. Install flooring in recessed floor access covers, maintaining floor pattern.

H. At movable partitions, install flooring under partitions without interrupting floor pattern.

3.04 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, unless otherwise noted.

C. Install square tile to pattern indicated on Interior Drawings and Finish Schedule. pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

D. Install plank tile with a random offset of at least 6 inches (152 mm) from adjacent rows.

3.05 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches (45 mm) 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.

3.06 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.

3.07 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's written instructions.

3.08 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION 096500

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.

B. Section 090561 - COMMON WORK RESULTS FOR FLOORING PREPARATION: Concrete slab moisture and alkalinity testing and remediation procedures.

1.03 REFERENCE STANDARDS

A. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

B. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

C. NTMA (EPOXY) - Epoxy Terrazzo Specifications; Current Edition.

1.04 SUBMITTALS

A. See Section 013300 - 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. Samples: Submit two samples, 2 inch (___ mm) by 2 inch (___ mm) in size illustrating color, chip size and variation, chip gradation, matrix color, and typical divider strip.

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. 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 (1 by 1 m).

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 (16 degrees C).

C. Keep products away from fire or open flame.

1.08 FIELD CONDITIONS

A. Do not install terrazzo when temperature is below 50 degrees F (10 degrees C) or above 90 degrees F (32 degrees C).

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: Terrazzo & Marble Supply Companies; Terroxy Resin Systems: www.tmsupply.com/#sle.

B. Other Acceptable Manufacturers - Resinous Matrix Terrazzo Flooring:
   1. Key Resin Company; Key Epoxy Terrazzo System: www.keyresin.com/#sle.
   2. Sherwin-Williams Company: General Polymers Brand; ____: www.generalpolymers.com/#sle.
   3. Terrazzco; TERRAZZCO Epoxy Terrazzo System, a brand of Concord Terrazzo Company, Inc: www.terrazzco.com/#sle.

C. Substitutions: See Section 016000 - Product Requirements.

2.02 EPOXY MATRIX TERRAZZO APPLICATIONS

A. Floors:
   1. Thickness: As indicated on Drawings.
   2. Color(s): Match existing.
   3. Color(s): As indicated on drawings.
   4. Aggregate Type and Mix: As indicated on Finish Schedule.

B. Wall Base:
   1. Thickness: Same as floors.
   2. Style: Coved.
   3. Color(s): As indicated on drawings.
   4. Aggregate Type and Size: Same as floors.

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 and size to match existing.

C. Finishing Grout: Epoxy, color to match existing.

2.04 ACCESSORIES

A. Divider Strips: Thickness and exposed top strip to match existing, 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. Existing and New 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.

B. Prepare concrete subfloor by mechanically abrading surface in accordance with manufacturer's instructions.

C. Substrate Crack Suppression Membrane: Install to isolate and suppress substrate cracks according to manufacurer's written instructions.

D. Apply primer in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Place terrazzo mix over substrate to thickness indicated.

3.04 FINISHING

A. Finish terrazzo to NTMA requirements.

B. Grind terrazzo surfaces with power disc machine; sequence with coarse to fine grit 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

A. Maximum Variation from Flat Surface: 1/4 inch in 10 feet (6 mm in one m).

3.06 CLEANING

A. Scrub and clean terrazzo surfaces with neutral pH cleaner in accordance with manufacturer's instructions. Let dry.

B. Immediately after terrazzo has dried, apply sealer in accordance with manufacturer's instructions.

C. Polish surfaces in accordance with manufacturer's instructions.

3.07 PROTECTION

A. Protect finished terrazzo from damage due to subsequent construction until Date of Substantial Completion.

END OF SECTION 096623

SECTION 096700
FLUID-APPLIED FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Epoxy Resin Flooring and base.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing joints between fluid-applied flooring and adjacent construction and fixtures.

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 221006 - Plumbing Piping Specialties: Recessed plumbing access cover frames.

1.03 REFERENCE STANDARDS

A. ANSI/ESD STM7.1 - The Protection of Electrostatic Discharge Susceptible Items Flooring Systems Resistive Characterization; 2021.

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

C. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

D. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

1.04 SUBMITTALS

A. See Division 01 for Submittal Procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colors available.

C. Samples: Submit two samples, 4 by 4 inch (____by____ mm) in size illustrating color and pattern for each floor material for each color specified.

D. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.

E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and application rate for each coat.

F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, procedures for stain removal, repairing surface, and suggested schedule for cleaning.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Division 01- Product Requirements, for additional provisions.
   2. Extra Top Coat Materials: 2 gallons (8 liters).

H. Warranty: Submit msnfacturers written warranty for each product specified.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section.

1. Minimum five years of documented experience.
2. Must by certified and approved by manufacturer.

C. Supervisor Qualifications: Trained by product manufacturer , under direct full time supervision of manufacturer's own foreman.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store resin materials in a dry, secure area.

B. Store materials for three days prior to installation in area of installation to achieve temperature stability.

1.07 FIELD CONDITIONS

A. Maintain minimum temperature in storage area of 55 degrees F (13 degrees C).

B. Store materials in area of installation for minimum period of 24 hours prior to installation.

C. Maintain ambient temperature required by manufacturer 72 hours prior to, during, and 24 hours after installation of materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fluid-Applied Flooring: **Basis of Desgin: Refer to drawing I000 Finish Schedule.**
1. Substitutions: See Section 016000 - Product Requirements.

2.02 FLUID-APPLIED FLOORING SYSTEMS

A. Epoxy Resin Flooring Type ERF: High -solids epoxy resins, chemical-resistant grout and topcoat with decorative quartz aggregates.
1. Manufacturer: **Basis of Design: Reer to drawing I000 Finish Schedule.**
2. Primer: Resuprime 3579 at 250 square foot per gallon
3. First Receiver Coat: Resuflor 3561 at 140-145 square foot per gallon
4. First Broadcast: GP5900F to excess at 0.40 lbs. per square foot.
5. Second Receiver Coat: Resuflor 5361 at 65-70 square foor per gallon.
6. Second Broadcast: GP5900F to excess at 0.4 lbs per square foot.
7. Grout Coat: Resuflor 3746 at 100 square foot per gallon.
8. Topcoat: Resuflor 3746 at 200 square foot per gallon.
9. System Thickness: 1/8 inch, nominal.
10. Color: As indicated on drawings.
11. Cove Base: Provide integral cove bae; 4" high, nominal.

2.03 ACCESSORIES

A. Base Caps: Zinc with projecting base of 1/8 inch (3 mm); color as selected.

B. Cant Strips: Molded of flooring resin material.

C. Subfloor Filler: Type recommended by fluid-applied flooring manufacturer.

D. Crack Treatment: Type recommended by fluid-applied flooring manufacturer.

E. Primer: Type recommended by fluid-applied flooring manufacturer.

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 flooring.

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 flooring.

C. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of materials to subfloor surfaces.

D. Cementitious Subfloor Surfaces: Verify that substrates are ready for fluid-applied flooring 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 fluid-applied flooring manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with subfloor filler.

B. Prepare concrete surfaces according to ICRI 310.2R, CSP 4-6.

C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Grind irregularities above the surface level. Prohibit traffic until filler is cured.

D. Apply crack treatment if needed.

E. Vacuum clean substrate.

F. Apply primer to surfaces per method required by flooring manufacturer.

3.03 INSTALLATION - ACCESSORIES

A. Install cant strips at base of walls where flooring is to be extended up wall as base.

B. Install terminating cap strip at top of base; attach securely to wall substrate.

3.04 INSTALLATION - FLOORING

A. Apply in accordance with manufacturer's instructions.

B. Apply each coat to minimum thickness required by manufacturer.

C. Finish to light texture, level surface.

D. Cove at vertical surfaces.

3.05 FIELD QUALITY CONTROL

A. See Section 014000 - BSD Quality Requirements, for additional requirements.

B. Test installed floor surface in accordance with ANSI/ESD STM7.1 .

3.06 PROTECTION

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Barricade area to protect flooring until fully cured.

END OF SECTION 096700

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SECTION 099000
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Interior painting and coating systems.

C. Scope:
   1. Finish surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
      a. Interior:
         1) Concrete, Walls and Ceilings: Cast-in-place concrete, precast concrete, unglazed brick, fiber cement board, tilt-up, and plaster.
         2) Concrete Masonry Units: smooth .
         3) Metal: Galvanized and Primed steel.
         4) Metal, Galvanized: Ceilings and ductwork.
         5) Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and other ferrous metal.
         6) Wood: Walls, ceilings, doors, and trim.
         7) Drywall: Walls, ceilings, gypsum board, and similar items.
         8) Gymnasium Ceilings
         9) Existing Metal Lockers.

1.02 RELATED REQUIREMENTS

A. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 055000 - Metal Fabrications: Shop-primed items.

C. Section 099600 - High-Performance Coatings.

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. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

C. SSPC-SP 2 - Hand Tool Cleaning; 2018.

D. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

E. SSPC-SP 13 - Surface Preparation of Concrete; 2018.

1.04 SUBMITTALS

A. See Division 01 for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Product characteristics.
   2. Surface preparation instructions and recommendations.
   3. Primer requirements and finish specification.
   4. Storage and handling requirements and recommendations.
   5. Application methods.
   6. Clean-up information.

C. Samples: Submit three paper draw down samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.

D. Certification: By manufacturer that paints and finishes comply with VOC limits specified.

E. Maintenance Data: Submit coating maintenance manual including finish schedule showing where each product/color/finish was used, product technical data sheets, safety data sheets (SDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Division 01 for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
   3. Label each container with color in addition to manufacturer's label.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.06 MOCK-UPS

A. See Section 014000 - BSD Quality Requirements for general requirements for mock-ups.

B. Provide one mock-up of paint pattern on wall as directect by Architect to demonstrate color, finish and quality.

C. Provide one accent wall as directed by Architect to demonstrate color and finish.

D. Mock-up may remain as part of the work.

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, product name, product code, color designation, VOC content, batch date, environmental handling, surface preparation, application, and use instructions.

C. Paint Materials: Store at a minimum of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

D. Handling: Maintain a clean, dry storage area to prevent contamination or damage to materials.

1.08 FIELD CONDITIONS

A. Do not apply materials when environmental conditions are outside the ranges required by manufacturer.

B. Follow manufacturer's recommended procedures for producing the best results, including testing substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. **Basis of Design Products: Sherwin Willaims; Refer to drawing I000 Finish Schedule**.
   1. Substitutions: See Section 016000 - Product Requirements
      a. Benjamin Moore
      b. PPG Paints
      c. Behr Process Corportation

2.02 PAINTINGS AND COATINGS

A. General:
   1. Provide factory-mixed coatings unless otherwise indicated.
   2. Do not reduce, thin, or dilute coatings or add materials to coatings unless specifically indicated in manufacturer's instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. 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.

C. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

2.03 PAINT SYSTEMS - INTERIOR

A. Concrete, Walls and Ceilings: Poured concrete, precast concrete, unglazed brick, cement board, tilt-up, cast-in-place concrete, and plaster.
   1. Latex Systems:
      a. Semi-Gloss Finish High Performance (HP):
         1) 1st Coat: Sherwin-Williams Loxon Concrete and Masonry Primer Sealer, LX02W50 Series: www.sherwin-williams.com/#sle.
            (a) 8 mils wet, 3.2 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 HP Zero VOC Latex Semi-Gloss, B31-1950 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.6 mils dry per coat.
   2. Epoxy Systems, Water-Based:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams Loxon Concrete and Masonry Primer Sealer, LX02W50: www.sherwin-williams.com/#sle.
            (a) 8 mils wet, 3.2 mils dry.
         2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.5 mils dry per coat.

B. Masonry CMU: Concrete, split face, scored, smooth, high density, low density, and fluted.
   1. Latex Systems:
      a. Eg-Shel/Satin Finish High Performance (HP):
         1) 1st Coat: Sherwin-Williams PrepRite Block Filler, B25W25: www.sherwin-williams.com/#sle.
            (a) 75 to 125 sq ft/gal (1.8 to 3.1 sq m/L).
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 HP Zero VOC Eg-Shel, B20-1950 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.7 mils dry per coat.
   2. Epoxy Systems, Water-Based:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams Loxon Block Surfacer, LX01W200: www.sherwin-williams.com/#sle.

(a) 50 to 100 sq ft/gal (1.2 to 2.5 sq m/L).

2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.

(a) 4 mils wet, 1.5 mils dry per coat.

C. Metal: Galvanized.

1. Latex Systems:

a. Semi-Gloss Finish:

1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.

(a) 5 mils wet, 2 mils dry per coat.

2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Acrylic Semi-Gloss, B66-650 Series: www.sherwin-williams.com/#sle.

(a) 2 to 4 mils dry per coat.

2. Epoxy Systems, Water-Based:

a. Semi-Gloss Finish:

1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.

(a) 5 mils wet, 2 mils dry per coat.

2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.

(a) 4 mils wet, 1.5 mils dry per coat.

D. Metal, Galvanized: Ceilings and ductwork.

1. Dryfall Waterborne Topcoats:

a. Flat Finish:

1) 1st and 2nd Coat: Sherwin-Williams Pro Industrial Waterborne Acrylic Dryfall, B42-181 Series: www.sherwin-williams.com/#sle.

(a) 6 mils wet, 1.7 mils dry per coat.

E. Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and ferrous metal.

1. Latex Systems:

a. Semi-Gloss Finish:

1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.

(a) 5 mils wet, 2 mils dry per coat.

2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Acrylic Semi-Gloss, B66-650 Series: www.sherwin-williams.com/#sle.

(a) 2 to 4 mils dry per coat.

2. Epoxy Systems, Water-Based:

a. Semi-Gloss Finish:

1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.

(a) 5 mils wet, 2 mils dry per coat.

2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.

(a) 4 mils wet, 1.5 mils dry per coat.

F. Wood: Walls, ceilings, doors, and trim.

1. Latex Systems:

a. Semi-Gloss Finish:

1) 1st Coat: Sherwin-Williams Premium Wall and Wood Primer, B28W8111: www.sherwin-williams.com/#sle.
   (a) 4 mils wet, 1.8 mils dry per coat.
2) 2nd and 3rd Coat: Sherwin-Williams ProClassic Waterborne Acrylic Semi-Gloss, B31 Series: www.sherwin-williams.com/#sle.
   (a) 4 mils wet, 1.3 mils dry per coat.

G. Drywall and Plaster: Walls, ceilings, gypsum board, and similar items.
   1. Latex Systems:
      a. Eg-Shel Finish High Performance (HP):
         1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.5 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 HP Zero VOC Eg-Shel, B20-1950 Series: www.sherwin-williams.com/#sle.
      b. Flat Finish:
         1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.5 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 Zero VOC Latex Flat, B30-2600 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.6 mils dry per coat.
   2. Epoxy Systems, Water-Based:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.5 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.5 mils dry per coat.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

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 mildew from impervious surfaces by scrubbing with solution of water and bleach. Rinse with clean water and allow surface to dry.

D. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk.
   2. Fill bug holes, air pockets, and other voids with cement patching compound.
   3. Prepare concrete according to SSPC-SP 13.

E. Masonry: Remove efflorescence and chalk.

F. Gypsum Board: Fill minor defects with filler compound; sand smooth and remove dust prior to painting.

G. Plaster: Fill hairline cracks, small holes, and imperfections with patching plaster. Make smooth and flush with adjacent surfaces. Treat textured, soft, porous, or powdery surfaces in accordance with manufacturer's instructions.

H. Aluminum: Remove surface contamination and oil; wash with solvent according to SSPC-SP 1.

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. Prime bare steel surfaces.
   3. Remove rust, loose mill scale, and other foreign substances using methods recommended by paint manufacturer and blast cleaning according to SSPC-SP 6. Protect from corrosion until coated.

K. Wood: Remove dust, grit, and foreign matter. Scrape, sand, and spot prime knots and pitch streaks. Fill nail holes and imperfections with wood filler and sand smooth.

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.

C. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.

3.04 PRIMING

A. Apply primer to all surfaces unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

B. Primers specified in painting schedules may be omitted on items factory primed or factory finished items if acceptable to top coat manufacturers.

3.05 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.

3.06 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION 099000

SECTION 101200
DISPLAY CASES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Recessed display cases.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Blocking and supports.

B. Section 092116 - Gypsum Board Assemblies: Concealed supports in metal stud walls.

C. Section 092216 - NON-STRUCTURAL METAL FRAMING: Concealed supports in metal stud walls.

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit complete printed data and installation details indicating products to be provided as specified.
   1. Submit color charts for selection by the Architect.

C. Shop Drawings: Submit complete installation details. Include dimensioned elevations.

D. Samples: Submit samples of material and trim to illustrate finish, color, and texture.

E. Specimen Warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least three years of documented experience.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver display cases and materials to the Project site with manufacturer’s protective crate covering and do not open until ready for use.

B. Protect display cases before, during, and after installation. In case of damage, immediately provide necessary repairs and replacements.

1.07 FIELD CONDITIONS

A. Field Measurements: Verify field measurements for recessed application for display cases before preparation of shop drawings and before fabrication to ensure proper installation.

1.08 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 five year minimum manufacturer warranty against defects and in materials, finish product and workmanship.

PART 2 PRODUCTS

2.01 DISPLAY CASES

A. Manufacturers: **Basis of Design: Hale Manufacturing Company**

1. Substitutions: See Section 016000 - Product Requirements.

B. Recessed Display Case: Factory-fabricated wood-framed display case with adjustable glass shelves, finished interior, and wood trim on face to cover edge of recessed opening.
   1. Width: _____ feet (_____ mm).
   2. Height: As indicated on drawings.
   3. Depth: As indicated on drawings.
   4. Components:
      a. Glazed Doors: Sliding.
         1) Number of Doors: six pair.
      b. Side Panels: stained hardwood.
      c. Back Panel: Stained hardwood with applied wall graphic.
      d. Top Panel: stained hardwood.
      e. Bottom Panel: stained hardwood.
      f. Lighting: LED.

2.02 COMPONENTS

A. Wood Case Construction: 3/4 inch (19 mm) hardwood with manufacturer's standard stain.

B. Aluminum Framed Case Construction: 1-1/2 inch by 2 inch (38 mm by 51 mm) extruded aluminum tube frame with tempered glass, laminate-faced, and stained veneer plywood infill panels.

C. Glazed Sliding Doors:
   1. 1/4 inch (6 mm) clear tempered glass with plastic finger pulls.
   2. Door track: Extruded aluminum glass shoe with bottom rollers and top plastic guide.
   3. Lock: Glass door cylinder lock.

D. Glass Shelves:
   1. 1/4 inch (6 mm) clear tempered glass with flat-polished edges.
   2. Shelf Depth: 6 inches (152 mm).
   3. Shelves per Unit: Two.

E. Shelf Standards and Brackets: Single-slotted channel standards for brackets adjustable in 1 inch (25 mm) increments along entire length of standard, drilled and countersunk for screws.
   1. Finish: Anochrome.

F. Lighting: Manufacturer's standard LED light fixture housed at top of case with louvered aluminum access door with keyed lock.

2.03 MATERIALS

A. Aluminum Extrusions for Framing and Trim: Alloy as recommended by manufacturer for construction and specified finish; nominal 1/8 inch (3.2 mm) wall thickness.

B. Plywood: Softwood plywood with veneer core, waterproof glue, 3/4 inch (19 mm) thick.

PART 3 EXECUTION

3.01 PREPARATION

A. Rough openings, electrical pre-wiring, and final finishing are by other trades.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide factory trained installers.

C. Locate fastening devices to secure cases securely to back and sides of rough opening.

D. Install recessed display cases plumb and level in wall openings, ____ inches (____ mm) from finished floor to inside bottom of display case.

E. Refer to drawings for display case mounting heights.

F. Provide vinyl wrapped H-moldings to match vinyl covered boards.

G. Clean case and glass using manufacturers recommended procedures.

H. Provide mitered and wrapped hairline joints for all trims.

3.03 ADJUSTING AND CLEANING

A. Verify that all accessories are installed as detailed for each unit.

B. At completion of work, clean glass surfaces, back panels and trim in accordance with manufacturer's recommendations leaving units ready for use.

3.04 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.

END OF SECTION 101200

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SECTION 101400
SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Room and door signs.

1.02 PRICE AND PAYMENT PROCEDURES

A. Room and door signs are not covered by the allowance.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

1.04 SUBMITTALS

A. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.

B. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
   1. Submit for approval by Owner through Architect prior to fabrication.

C. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.

D. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Package signs as required to prevent damage before installation.

B. Store tape adhesive at normal room temperature.

1.06 FIELD CONDITIONS

A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Flat Signs:
   1. Best Sign Systems, Inc; ADA signs: www.bestsigns.com/#sle.
   2. Signs & Graphics Group (ADA signs); ADA Series 1: www.printandvisualhome.com//#sle.
   3. FASTSIGNS; ADA signs: www.fastsigns.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

2.02 SIGNAGE APPLICATIONS

A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 _____, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.

B. Room and Door Signs: Provide a sign indicated on drawings, refer to Signage Schedule & ADA Signage Types Detail.

2.03 SIGN TYPES

A. Flat Signs: Signage media without frame.
   1. Edges: Bevelled.

2. Corners: Radiused.
3. Wall Mounting of One-Sided Signs: Tape adhesive.

B. Color and Font: Unless otherwise indicated:
1. Character Font: Helvetica, Arial, or other sans serif font.
2. Character Case: Upper case only.
3. Background Color: Black.
4. Character Color: White color.

2.04 ACCESSORIES

A. Concealed Screws: Stainless steel, galvanized steel, chrome plated, or other non-corroding metal.

B. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install neatly, with horizontal edges level.

C. Locate signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

D. Protect from damage until Date of Substantial Completion; repair or replace damaged items.

END OF SECTION 101400

SECTION 102113
TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Solid plastic toilet compartments including the following:
   1. Floor mounted toilet compartments.

1.02 RELATED WORK

A. Section 05 50 00 - Metal Fabrications.

B. Section 06 10 00 - Rough Carpentry.

1.03 REFERENCES

A. ASTM International (:
   1. ASTM A 666 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
   2. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
   3. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. National Fire Protection Association (NFPA):
   1. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
   1. Include coordinated dimensions for equipment and furnishings specified in other Sections.

D. Verification Samples: For each finish product specified, two samples, representing actual product, color, and finish.

E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

F. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic checking and adjustment, cleaning and maintenance.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Five years or more experience in manufacture of laboratory casework and equipment of type specified.

B. Installer: Five years or more experience with installation of similar products, and acceptable to the manufacturer.

C. Mock-Up: Provide a mock-up for evaluation of fabrication techniques and application workmanship.
   1. Install in areas designated by Architect.
   2. Do not proceed with remaining work until installation is approved by Architect.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products in the manufacturer's unopened packaging until ready for installation.

B. Protect finished surfaces from soiling or damage during handling and installation.

1.07 COORDINATION AND SCHEDULING

A. Schedule delivery of access flooring so that spaces are sufficiently complete and access flooring materials can be installed immediately following delivery.

1.08 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.09 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard 25 year limited warranty for against breakage, corrosion, and delamination under normal conditions.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Basis of Design Manufacturer: Scranton Products, which is located at: 801 E. Corey St.; Scranton, PA 18505; Toll Free Tel: 800-445-5148; Fax: 855-376-6161; Email:request info (info@scrantonproducts.com); Web:http://www.scrantonproducts.com
   1. Fabricator: Santana Toilet Partitions.
   2. Fabricator: Comtec Toilet Partitions.
   3. Fabricator: Capitol Toilet Partitions.

B. Substitutions: See Section016000-Product Requirements.
   1. Products other than Basis of Design are subject to compliance with specified requirements and prior approval of Architect. By using products other than Basis of Design, Contractor accepts responsibility for costs associated with necessary modifications to related work, including design fees.

2.02 MATERIALS

A. Doors, Panels and Pilasters:
   1. High density polyethylene (HDPE), fabricated from polymer resins compounded under high pressure, forming single thickness panel.
   2. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
   3. Thickness: 1 inch (25 mm) with 1/4 inch (6 mm) radiused edges. One edge of pilaster and transom panels to be ship lapped.
   4. Recycled Content (Post Industrial): 25 percent.
   5. Fire Rating: Tested in accordance too NFPA 286: Pass.
   6. Fire Rating: Tested to meet ASTM E 84: Class B flame spread/smoke developed rating.

B. Aluminum and Aluminum Extrusions: ASTM B221, 6463-T5 alloy and temper.

C. Stainless Steel: ASTM A167, Type 304.

2.03 TOILET COMPARTMENT SYSTEM

A. Basis of Design: ARIA Toilet Partitions as manufactured by and supplied by Scranton Products.
   1. Style: Full height floor mounted overhead braced toilet compartments.

B. System Construction:

1. System Specified Height: As determined by the Architect.
2. Doors: 79 inches (2007 mm) high. Mounted 1 inch (25 mm) above finished floor.
3. Dividing Panels: Two panels stacked and secured with 3 dowels ensuring proper alignment totaling the system specified height
   a. Trim: Application to hide seam gap between dividing panels.
4. Pilasters: System specified height, shoeless system secured with 3/4 inch (19 mm) long stainless steel tamper resistant Torx head screws and angled wall brackets.
5. Transom Panel: Height required to accommodate specified system height with ship lap on one edge. Mounted with four mending plates using 3/4 inch (19 mm) long stainless steel tamper resistant Torx head screws.
6. Wall Brackets: 54 inches (1372 mm) long, heavy-duty aluminum with bright dip anodized finish. Mounts to pilasters, panels and walls with 3/4 inch (19 mm) long stainless steel tamper resistant Torx head screws.

C. System Design:
1. Door Design: Traditional Series; Model 1000.
2. Side Panel Design: Plain (standard).
3. Color: As determined by the Architect from Manufacturer's selection.
4. Trim: Standard radius edged, 5 inches (127 mm) wide.
5. Trim Color: As determined by the Architect from Manufacturer's selection.

2.04 HARDWARE:

A. Hinges: Helix style 78 inches (1981 mm) edge mounted continuous hinge.
1. Stainless steel: 0.074 inch (1.88 mm) thick 304-2B stainless steel using a stainless-steel pin in 0.234 inch (5.94 mm) diameter.
2. Closing degree is minus 5 degrees. Hinge is designed to come to a full close on its own weight.

B. Occupancy Indicator Latch and Housing: Satin stainless-steel showing green and red occupancy indicators.
1. Latch housing: Satin stainless steel.
2. Slide bolt and button: Satin stainless steel.
3. Door Pulls: Satin stainless steel.

C. Coat Hook and Bumper:
1. Combination type, chrome plated Zamak.
2. Equip outswing handicapped doors with second door pull and door stop.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas receiving toilet partitions, panels and pilasters for correct height and spacing of anchorage, blocking and plumbing fixtures that affect installation of partitions. Report discrepancies to the Architect.

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. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install partitions rigid, straight, plumb, and level manor, with items laid out as shown on shop drawings.

C. Clearance at vertical edges of doors shall be uniform top to bottom.

D. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.

E. Finished surfaces shall be cleaned after installation and be left free of imperfections.

3.04 PROTECTION

A. Take protective measures to prevent exposure to other construction activity.

B. Protect installed products until completion of project.

3.05 CLEANING

A. Clean surfaces to remove soiling, stains, dust, and dirt using materials acceptable to manufacturer.

B. Touch-up, repair or replace damaged products and defective work, as directed by Architect.

C. Leave installation area clean, free of residue and debris resulting from work of this Section.

END OF SECTION 102113

SECTION 102800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Public-use washroom accessories.

1.03 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.

1.04 QUALITY ASSURANCE

A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.

1.05 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.

1.06 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

2.01 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.

C. Steel Sheet: ASTM A 1008, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.

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-and-theft 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.

2.02 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 (Roll) Dispenser:
   1. Existing to be reinstalled.

C. Liquid-Soap Dispenser:
   1. Existing to be reinstalled.

D. 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.

E. Sanitary-Napkin Disposal Unit:
   1. Basis-of-Design Product: Bobrick No. B-270.
   2. Mounting: Partition mounted.
   3. Material and Finish: Stainless steel, No. 4 finish (satin).
   4. Provide one at each Women's toilet compartment.

F. Paper Towel Dispenser:
   1. Existing to be reinstalled.

G. Mirror Unit:
   1. Existing to be reinstalled.

H. Folding Shower Seat:
   1. Basis-of-Design Product: Bobrick No. B-5181.
   2. Material and Finish: one-piece, ½" thick, solid phenolic with matte finish, antique white-colored.
   3. Frame: 18-8, Type 304 stainless steel with satin finish. 16 gauge square tubing and 18 gauge diameter seamless tubing.

4. Mounting flanges: two 18-8, Type 304, 3/16” thick stainless steel with satin finish. 3” diameter with three mounting screw holes.
5. Baseplate: 18-8, Type 304, heavy-gauge stainless steel.
6. Spring: 17-7, Type 301, 24 gauge stainless steel, spot-welded to baseplate.
7. Guide bracket: 18-8, Type 304, 16 gauge stainless steel with satin finish.
8. Provide where indicated.

I. Shower Curtain Rod:
1. Basis-of-Design Product: Bobrick No. B-207.
2. Material and Finish: 18-8, Type 304, 20 gauge stainless steel tubing with satin finish. 1” outside diameter.
3. Concealed mounting brackets: Aluminum.
4. Provide at each shower and changing room.

J. Shower Curtain:
1. Basis-of-Design Product: Bobrick No. B-204.
2. Material and Finish: opaque, matte white vinyl 0.008” thick, containing antibacterial and flame-retardant agents. Nickel-plated brass grommets, 6” o.c. Bottom and sides hemmed.
3. Provide one at each shower compartment and changing station.

K. Shower Curtain Hooks:
1. Basis-of-Design Product: Bobrick No. B-204-1.
2. Material and Finish: Type 304 stainless steel for use on 1” and 1-1/4” diameter shower curtain rods.
3. Provide number required for each shower curtain.

L. Surface-mounted Single Robe Hook:
1. Basis-of-Design Product: Bobrick No. B-7671.
2. Material and Finish: Type 304 stainless steel with bright polished finish.
3. Provide at each shower compartment and changing station.

M. Surface-mounted Door Bumper:
1. Basis-of-Design Product: Bobrick No. B-687.
2. Material and Finish: Type 304 stainless steel with bright polished finish. Unit shall be equipped with neoprene bumper.
3. Provide at each compartment door.

2.03 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

3.01 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.

3.02 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.

END OF SECTION 102800