



architects + engineers

**PROJECT MANUAL**

**IRVINGTON UNION FREE SCHOOL DISTRICT  
6 DOWS LANE  
IRVINGTON, NEW YORK 10533**

**DOWS LANE ELEMENTARY  
SCHOOL INNOVATION SUITE**

**SED Control #66-04-02-02-0-002-021**

Project No: IRSD 2003

CONTRACT G – GENERAL CONSTRUCTION, ELECTRICAL,  
PLUMBING AND ASBESTOS ABATEMENT WORK

**SED FINAL BID SET  
NOVEMBER 2021**

**H2M Architects + Engineers**

2700 Westchester Ave, Purchase, NY 10577  
tel 914.358.5623 fax 914.358.5624

[www.h2m.com](http://www.h2m.com)

The design of this project conforms to all applicable provision of the New York State Uniform Fire Prevention and Building Code, the New York State Energy Conservation Code, and the building standards of the New York State Education Department.



**IRVINGTON UNION FREE SCHOOL DISTRICT  
DOWS LANE ELEMENTARY SCHOOL INNOVATION SUITE**

**SED Control No. 66-04-02-02-0-002-021**

**CONTRACT G – GENERAL CONSTRUCTION, ELECTRICAL,  
PLUMBING AND ASBESTOS ABATEMENT WORK**

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## **APPENDIX**

FINAL REPORT OF ENVIRONMENTAL SERVICES
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Notice is hereby given that **SEALED PROPOSALS** for:

Irvington Union Free School District

**RENOVATIONS AT DOWS LANE ELEMENTARY SCHOOL**

**SED: #66-04-02-02-0-002-021**

**CONTRACT G - GENERAL CONSTRUCTION**

will be received until **10:00 AM on 12/20/2021** at the Irvington Union Free School District Office located at **6 Dows Lane, Irvington, NY 10533**, side entrance security desk. If the School District is closed to students for any reason that day, staff will be present to accept bid packets from 8am until posted bid time. Bids may also be mailed or accepted through express mail carriers.

Complete sets of Hard Copy Bidding Documents, Drawings and Specifications, may be obtained beginning **11/18/2021**, from REVplans, 28 Church Street, Unit 7, Warwick, New York 10990, Tel: 1-877- 272-0216, upon depositing the sum of **One Hundred Dollars (\$100.00)** for each combined set of documents. Checks or money orders shall be made payable to Irvington 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.

As a convenience to the Contractor digital Bidding Documents, Drawings and Specifications may be obtained from the following website: [www.revplans.com](http://www.revplans.com) as an online download for a nonrefundable fee of **Forty-Nine Dollars (\$49.00)**, in form of credit card.

Please note REVplans and [www.revplans.com](http://www.revplans.com) are the designated locations and means for distributing and obtaining all bid package information. All bidders are urged to register to ensure receipt of all necessary information, including bid addenda.

All bid addenda will be transmitted to registered plan holders via email and will be available at [www.revplans.com](http://www.revplans.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 REVplans 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.

**Bids must be made on the standard proposal form in the manner designated therein and as required by the specifications that must be enclosed in sealed opaque envelopes bearing the name of the job, contract type and name and address of the bidder on the outside, addressed to: "PURCHASING AGENT, Irvington Union Free School District", and clearly marked on the outside, "DOWS LANE ELEMENTARY SCHOOL RENOVATIONS". The School District is not responsible for bids opened prior to the bid opening if bid name, contract type and opening date do not appear on the envelope. Bids opened prior to date and time indicated are invalid. The bidder assumes the risk of any delay in the mail, or in the handling of the mail by employees of the Irvington Union Free School District, as well as of improper hand delivery. The bid opening will be in the District office.**

Each proposal submitted must be accompanied by a certified check or bid bond, made payable to the "Irvington Union Free School District", in an amount equal to ten percent (10%) of the total amount of the bid, as a commitment by the bidder that, if its bid is accepted, it will enter into a contract to perform the work and will execute such further security as may be required for the faithful performance of the contract.

**Certification of bonding company is required for this bid. See Instructions for Bidders.**

Each bidder shall agree to hold his/her bid price for forty-five (45) days after the formal bid opening.



**A pre-bid meeting and walk-thru shall be scheduled by appointment only as follows:**

**Tuesday, November 30th, 2021 at 11:30 am** at the Dows Lane Elementary School, 6 Dows Lane, Irvington, NY 10533.

Potential bidders are asked to contact Kevin Sawyer, Vice President, Project Executive regarding any other site visits:

**Kevin Sawyer**  
**Vice President, Project Executive**  
**Triton Construction Company**  
**30 East 33rd Street - 11th Floor | New York, NY 10016 office 212.388.5700 | mobile 845.821.3354**  
**e-mail: [k-sawyer@tritonconstruction.net](mailto:k-sawyer@tritonconstruction.net)**

Bidders are asked to follow NYS DOH and District directives during the pre-bid walk thru, including wearing a mask and be COVID-19 symptom free. Although the pre-bid meeting and walk-thru are **not** mandatory, it is highly recommended that all potential bidders make arrangements to visit the site.

It is the Board's intention to award the contract to the lowest responsible, responsive bidder in compliance with the specifications providing the required security who can meet the experience, technical and budget requirements. The Board reserves the right to reject any or all bids, waive any informality and to accept such bid which, in the opinion of the Board, is in the best interests of the School District.

**By Order of the Board of Education**  
**Irvington Union Free School District**  
**6 Dows Lane**  
**Irvington, NY 10533**



## **BIDS FOR PROJECT**

The Board of Education of the Irvington Union Free School District (hereafter called School District), will receive **SEALED PROPOSALS** for:

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
6 Dows Lane, Irvington, New York 10533

**SED: 66-04-02-02-0-002-021**

### **CONTRACT G - GENERAL CONSTRUCTION & ASBESTOS WORK**

## **TIME AND PLACE**

The sealed proposals are to be submitted at the:

Irvington Union Free School District  
**ADMINISTRATION OFFICE**  
6 Dows Lane  
Irvington, New York 10533

See notice to bidders for all dates and times.

## **REQUIRED BID SUBMISSIONS**

**Each bid submission shall consist of three (3) sealed envelopes containing the following items. The bidder shall carefully remove all forms from the project specification. The project manual should not be submitted or included in the bid package.**

### **Envelope No. 1 - BID PROPOSAL:**

This envelope shall be clearly marked with the name of the project, bidders name and marked "**BID PROPOSAL**" in large lettering on the envelope and shall contain the following items:

1. Certified check or Bid Bond in the amount totaling 10% of the base bid.
2. Certified letter from Bonding Company, indicating that they meet the criteria set forth in article 11 of the General Conditions.
3. Certified letter that the company bidding this project has been in business under the same name for a period of five years or longer, and is not currently disbarred from bidding or working on public works projects by the New York State Department of Labor.
4. One (1) fully executed original and one (1) copy (marked "copy") of the following:
  - a. Proposal forms (P-sheets).



- b. Non-collusive form.
- c. Hold Harmless Agreement.
- d. Certification of Compliance with the Iran Divestment Act or Declaration of Bidder's Inability to provide Certification of Compliance with the Iran Divestment Act.
- e. Insurance Certification
- f. 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. Each bid must be accompanied by the Insurance Certification Form located in the specifications. Failure to provide may result in the Owner finding the bidder "non-responsive" to the bid documents.
- g. Sexual Harassment Prevention Certification Form

**5. Single Prime Contractor - Sealed Subcontractor List:** The contract seeks bids from a single prime contractor. Each bidder shall submit with its bid a separate sealed list that names each subcontractor that the bidder will use to perform work on the contract, and the agreed-upon amount to be paid to each, for: (a) plumbing and gas fitting, (b) steam heating, hot water heating, ventilating and air conditioning apparatus and (c) electric wiring and standard illuminating fixtures. After the low bid is announced, the sealed list of subcontractors submitted with such low bid shall be opened and the names of such subcontractors shall be announced, and thereafter any change of subcontractor or agreed-upon amount to be paid to each shall require the approval of the school district, upon a showing presented to the school district of legitimate construction need for such change, which shall be open to public inspection. Legitimate construction need shall include, but not be limited to, a change in project specifications, a change in construction material costs, a change to subcontractor status as determined pursuant to paragraph (e) of subdivision two of section two hundred twenty-two of the labor law, or the subcontractor has become otherwise unwilling, unable or unavailable to perform the subcontract. The sealed lists of subcontractors submitted by all other bidders shall be returned to them unopened after the contract award.

#### **Envelope No. 2 - BID QUALIFICATIONS:**

This envelope shall be clearly marked with the name of the project, bidder's name and marked "**BID QUALIFICATIONS**" in large lettering on the envelope and shall contain the following items:

1. A description of its experience with projects of comparative size, complexity and cost together with documentary evidence showing that said projects were completed to the Owner's satisfaction and were completed in a timely fashion.
2. Documentation from five projects completed within the past five years:
  - a. timeliness of performance of the work of the project.
  - b. evidence that the project was completed to the Owner's satisfaction.
  - c. whether any extensions of time were requested and if such requests were granted.



- d. whether litigation and/or arbitration was commenced by either the Owner or the bidder as a result of the work of the project completed by the bidder.
  - e. whether any liens were filed on the project by subcontractors or material suppliers of the bidder.
  - f. whether the bidder was defaulted on the project by the owner.
  - g. whether the bidder made any claims for extra work on the project, including whether said claim resulted in a change order.
- 3. Documentation evidencing the bidder's financial responsibility, including a certified financial statement.
  - 4. Fully completed statement of bidder's qualification.
  - 5. Fully completed list of subcontractors.

**Envelope No. 3 SINGLE PRIME CONTRACTOR - SEALED SUB-CONTRACTOR LIST:**

The contract seeks bids from a single prime contractor. Each bidder shall submit with its bid a separate sealed list that names each subcontractor that the bidder will use to perform work on the contract, and the agreed-upon amount to be paid to each, for: (a) plumbing and gas fitting, (b) steam heating, hot water heating, ventilating and air conditioning apparatus and (c) electric wiring and standard illuminating fixtures. After the low bid is announced, the sealed list of subcontractors submitted with such low bid shall be opened and the names of such subcontractors shall be announced, and thereafter any change of subcontractor or agreed-upon amount to be paid to each shall require the approval of the school district, upon a showing presented to the school district of legitimate construction need for such change, which shall be open to public inspection. Legitimate construction need shall include, but not be limited to, a change in project specifications, a change in construction material costs, a change to subcontractor status as determined pursuant to paragraph (e) of subdivision two of section two hundred twenty-two of the labor law, or the subcontractor has become otherwise unwilling, unable or unavailable to perform the subcontract. The sealed lists of subcontractors submitted by all other bidders shall be returned to them unopened after the contract award.

**DETERMINATION OF BIDDERS**

In the consideration and acceptance of any proposal, the School District shall be entitled to exercise every measure of lawful discretion in evaluating the financial history and ability of the Bidder and its past performance in ventures of this or similar nature. Such data will be considered either as a material or controlling factor in the acceptance of any bid submitted.

- 1. Bidders must prove to the satisfaction of the School District that they are reputable, reliable and responsible.
- 2. The School District may make any investigation it deems necessary to assure itself of the ability of the Bidder to perform the work.
- 3. The School District reserves the right to reject any or all proposals and to accept the proposal it deems in the best interest of the School District.



4. A tie-bid is defined as an instance where bids are received from two or more Bidders who are the low responsive Bidders, and their offers are identical. It is the policy of the District to settle the outcome of tie-bids by either drawing a name from a hat or flipping a coin within 24 hours of the bid opening. All affected firms will be notified of the tie, the time and place of the resolution of the tie and shall be invited to witness the outcome. Attendance is not mandatory. The drawing/flip will be held at the District Administration Office. Two impartial witnesses will be provided and shall be present. All attendees will acknowledge the results of the tie-breaker on the bid tabulation sheet. All firms affected by the bids will be notified of the results. The results pursuant to this provision shall be considered final.

## **DEPOSITS**

Bidders deposit will be refunded if the set is returned in good condition within thirty (30) days following the award of the contract or the rejection of the bids covered by such plans and specifications. Non-bidders shall receive partial reimbursement, in an amount equal to the amount of the deposit, less the actual cost of reproduction of the documents if the set is returned in good condition within thirty (30) days following the award of the contract or the rejection of the bids covered by such plans and specifications.

## **VERBAL ANSWERS**

The School District, its agents, servants, employees and the Architect/Engineer shall not be responsible in any manner for **verbal** answers to inquiries made regarding the meaning of the contract documents, drawings or the specifications prior to the awarding of the contract.

For information with reference to the work and its location during bid phase by prospective bidders' questions shall be submitted in writing to:

Brian S. Paddack, RA, AIA

Senior Project Architect

**H2M Architects + Engineers**

2700 Westchester Avenue, Suite 415

Purchase New York 10577

**Phone: (914) 358-5623 x 2064**

**Fax: (914) 358-5624**

**E-mail: bpaddack@h2m.com**

To be given consideration, questions must be received in writing at least ten (10) days prior to the date fixed for the opening of bids.

## **ADDENDA AND INTERPRETATIONS**

No interpretations of the meaning of the plans, specifications or other Contract Documents will be made to any bidder orally. Every request for such interpretation shall be made in writing, addressed to:

Brian S. Paddack, RA, AIA

Senior Project Architect

**H2M Architects + Engineers**



2700 Westchester Avenue, Suite 415  
Purchase New York 10577  
**Phone: (914) 358-5623 x 2064**  
**Fax: (914) 358-5624**  
**E-mail: bpaddack@h2m.com**

To be given consideration, questions must be received in writing at least ten (10) days prior to the date fixed for the opening of bids. Any and all interpretations and any supplement instructions will be in the form of written addenda to the specifications, and will be sent by mail or faxed to each of the Contractors who has taken out the Drawings and Contract Documents.

All addenda so issued shall become part of the Contract Documents. If any addenda may materially affect the bid, as solely determined by the District, the District may extend the bid date.

### **PRE-BID INSPECTION OF SITE**

Each bidder shall conduct on-site inspections of the referenced project site during the pre-bid walkthrough prior to submission of a bid proposal. The bidder shall acquaint himself/herself with all apparent conditions and characteristics of the facility with regard to assessment of required materials quantities, evaluation of quality of existing materials, access to the site and equipment's, location of underground utilities, clearances and all related information necessary to develop an understanding of the required scope of the work and all field conditions. Bidders must satisfy themselves by personal examination of the location of the proposed work and of the actual conditions and requirements of the work and shall not, at any time after the submission of the Proposal, dispute or complain of such estimate or assert there was any misunderstanding in regard to the depth or character or the nature of the work to be done. No consideration will be given for subsequent additional claims by the contractor of award after bidding with regard to apparent field conditions.

### **PRE-BID CONFERENCE**

See Section "Notice to Bidders"

### **BIDDER TO BE FAMILIAR WITH PLANS AND REQUIREMENTS**

It is the bidder's responsibility to examine carefully the plans and specifications, proposal and the site upon which the work is to be performed. A proposal submitted shall be prima facie evidence that the bidder has made such examination and that he/she is familiar with all of the conditions and requirements.

### **PREPARATION OF PROPOSAL**

The Proposal forms for project contained herein must be used in preparing bids. Failure to use said Proposal forms or the inclusion of bids not requested shall result in rejection of the bid.

No proposal shall be received by the School District unless the bidder tendering same is known to be skilled in work of a similar nature to that envisaged in the Proposal.



Each bidder shall fill out in ink (in both words and figures) and signed by an officer of the corporation in the spaces provided, its unit or lump sum bid, as the case may be, for each item in the Proposal. If there is a discrepancy between the prices in words and figures, the prices in words shall govern as unit and lump sum prices.

**No bid will be considered which does not include bids for all items listed in the proposal sheets.**

### **NAME OF BIDDER**

Each bidder must state in the Proposal its full name and business address, and the full name of every person, firm or corporation interested therein and the address of every person or firm, or president and secretary of every corporation interested with it; if no other person, firm or corporation be so interested, it must affirmatively state such fact. The Bidder must also state that the Proposal is made without any connection (directly or indirectly) with any other bidder for the work mentioned in its proposal and is (in all respects) without fraud or collusion; it has inspected the site of the work, has examined the Contract, General Conditions, Specifications, Plans, all addenda, and Information for Bidders; no person acting for or employed by the school district is directly or indirectly interested therein, or in the supplies or work to which it relates or in any portion of the prospective profits thereof; it proposes and agrees if its proposal or bid is accepted, to execute a contract with the school district to perform the work mentioned in the contract, plans and specifications attached; and the amount it will accept in full payment.

### **CERTIFIED CHECK OR BID BOND/BONDING CERTIFICATION**

Each bid must be accompanied by either a certified check drawn on a solvent bank with an office in the State of New York, or a bid bond equal to ten percent (10 %) of the total amount of the project bid, and payable to the "Irvington Union Free School District". This amount shall be the measure of liquidated damages sustained by the School District as a result of the failure, negligence or refusal of the Bidder to whom the contract is awarded to execute and deliver the contract. Provide a certified statement that the bonding company meets or exceeds the requirements set forth in Article 11 of the General Conditions.

A Performance and Payment bond will be required for the work. Each shall be in the amount of 100% of the contract sum. Refer to Article 11 of the General Conditions for requirements associated with such bonds.

### **PERMITS AND REGULATIONS**

Each Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. Each Contractor is required to observe all laws and ordinances including, but not limited to, relating to the obstructing of streets, maintaining signals, keeping open passageways and protecting them where exposed to danger, and all general ordinances affecting him, his employees, or his work hereunder in his relations to the Owner or any person. Each contractor shall also obey all laws and ordinances controlling or limiting the Contractor while engaged in the prosecution of the work under this Contract.

If the Contractor observes that the drawings and specifications are at variance with laws and regulations, he/she shall promptly notify the Architect in writing and any necessary changes shall be adjusted as provided in the contract for changes in the work. If the Contractor performs any work knowing it be contrary to such laws, ordinances, rules, regulations, or specifications, or local, state or federal authorities without such notice to the Architect, he/she bear all costs arising there-from.



## **CONTRACTOR'S UNDERSTANDING**

It is understood and agreed that the Contractor has, by careful examination, satisfied himself/herself as to the nature and location of the Work, and confirmation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract.

No official, officer or agent of the Owner is authorized to make any representations as to the materials or workmanship involved or the conditions to be encountered and the Contractor agrees that no such statement or the evidence of any documents or plans, not a part of this contract, shall constitute any grounds for claim as to conditions encountered. No verbal agreement or conversation with any officer, agent or employee of the Owner either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

It is understood and agreed that the Contractor has informed himself fully as to the conditions relating to construction and labor under which the work will be performed and agrees as far as possible to employ such methods and means in the performance of his work so as not to cause interruption or interference with any other Contractor.

## **EQUIVALENTS**

A. In the Specifications, one or more kinds, types, brands, or manufacturers or materials are 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, or manufacturer or material other than those named in the specifications, they shall indicate in writing when requested, and prior to award of contract, what kind, type, brand or manufacturer is included in the base bid for the specified item.

B. Submission for equivalents shall be submitted to the Architect prior to the award of the contract.

C. Refer to Article 6(W) of the General Conditions for submission requirements. Contractor shall provide the Architect with the same documentation as required for substituted materials as set forth in Article 6(X) of the General Conditions.

## **BID EVALUATION**

The Owner and Architect may make such investigation as they deem necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish the Owner with all such additional information and data for this purpose as may be requested. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

## **BID WITHDRAWAL**



No bids may be withdrawn for a period of forty-five (45) days after opening of bids, except as permitted by General Municipal Law 103(11). The Owner may request an extension in writing, if necessary, for bidders to hold their bid for an additional 45 days.

### **SCHOOL DISTRICT RESERVATION OF RIGHTS**

The School District reserves the right to waive what it deems to be informalities relating to a specific bid, to waive what it deems to be technical defects, irregularities and omissions relating to a specific bid, to reject any or all bids, to request additional information from any bidder or to re-advertise and invite new bids. The School District reserves the right to award the contract on the basis of base bids, or by combining one or more alternates to determine the contract price.

### **CONTRACTOR'S QUALIFICATION STATEMENT (POST BID)**

The apparent low bidder must submit the required pre-award submittal package described below to the Owner's Construction Representative within 48 hours after the bids are opened.

#### **Triton Construction Company**

**Attn: Kevin Sawyer**

**30 East 33rd Street**

**New York, NY 10016**

**Phone: 212-388-5700**

**Email: k-sawyer@tritonconstruction.com**

Submissions must be emailed and must include the Project Name of this contract in the Subject Line of the Pre-Award submission email.

#### **1. Pre-award Submittal Package**

- a. Fully execute AIA-A305 Contractors Qualification Statement.
- b. Most recent financial statement by CPA.
- c. References and experience:
  - (1) List of all past contracts with K-12 Public School Districts.
  - (2) Provide three (3) references (Name, Title, Phone Number and email) of persons associated with three (3) different projects (public or private sector) of similar scope and size to the one identified in this contract. Additionally, include the names of two major suppliers used for each of these three (3) projects.

#### **2. Workforce and Work Plan - Provide a detailed written Work Plan which shall / demonstrate the contractor's understanding of overall project scope and shall include, but not be limited, to the following:**

- a. Sequential listing of specific project activities required to successfully complete the Work of the Contract.
  - (1) Include Schedule and list Critical Milestones.
  - (2) Include Phasing of the work, if required.
  - (3) Include listing of long lead-time items.
  - (4) Impact of weather and restricted work periods.
  - (5) Signed statement from a company officer that the Project can be completed in the established construction duration listed in the contract documents.
- b. Resumes for the contractor's proposed project site supervisor and staff including qualifications for specialized expertise or any certifications required to perform the Work.



- c. Names of proposed major sub-contractors (more than 15% of the bid amount) and a listing of the related trade work and value.
- d. Any special coordination requirements with other trades or ongoing contracts under separate contract(s).
- e. Any special storage and/ or staging requirements for construction materials required for the work.
- f. Any other special requirements including those noted in the contract documents or known to the contractor / subcontractor(s).

3. Detailed Cost Estimate:

- a. A copy of Detailed Cost Estimate outlined in CSI format for the contract work.

### **NOTICE OF ACCEPTANCE**

The School District shall give notice of acceptance of a bid by either registered or certified mail, sent within forty five (45) days after the bids have been opened.

### **SIGNING OF CONTRACT**

Each Bidder to whom a contract is awarded, shall, at the office of the School District within ten (10) business days after the date of notification by either registered or certified mail of acceptance of its proposal furnish the required payment and performance bonds in an amount of 100% of the contract, and the required insurance as set forth in Article 10 of the General Conditions, and sign the contract for the work for its performance and maintenance. Notwithstanding the above, the bidder acknowledges that its bid is an offer to contract, and the Owner's award is an acceptance of the bidder's offer, thereby creating a binding agreement

### **INSURANCE**

The amounts, types and clauses to be included in the insurance is required to be carried by the successful bidder and its contractors, are listed as set forth in Article 10 of the General Conditions.

### **WAIVER OF IMMUNITY**

Attention is directed to the statement of non-collusion required by Article 5A of the "General Municipal Law of the State of New York" concerning Waiver of Immunity and included in the attached Agreement.

### **RESPONSIBILITY OF BIDDER**

The attention of Bidders is directed particularly to the contract provisions whereby the Contractor will be responsible for any loss or damage that may occur to the work or any part thereof during its progress and whereby the Contractor must make good any defects or faults in the work that may occur during the progress or within two (2) years after its acceptance.

**Each Contractor shall provide for the continuation of the Performance Bond as a Maintenance Bond for two (2) full years after date of final payment request at the full contract price.**



The work is to be performed and completed to the satisfaction of the Owner & Architect/Engineer and in accordance with the specifications annexed hereto and the plans referred to therein.

### **LABOR RATES**

Attention is directed to the statement of non-collusion required by Article 5A of the "General Municipal Law of the State of New York" concerning Waiver of Immunity and included in the attached Agreement.

Each Contractor shall pay not less than the minimum hourly wage rates on those contracts as established in accordance with Section 220 of the Labor Law as shown in the schedule.

Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, provides (among other things) that it shall be the duty of the fiscal officer to make a determination of the schedule of wages to be paid to all laborers, workers and mechanics employed on public work projects, including supplements for welfare, pension, vacation and other benefits. These supplements include hospital, surgical or medical insurance, or benefits; life insurance or death benefits; accidental death or dismemberment insurance; and pension or retirement benefits. If the amount of supplements provided by the employer is less than the total supplements shown on the wage schedule, the difference shall be paid in cash to the employee.

Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, also provides that the supplements to be provided to laborers, workers and mechanics upon public work, "...shall be in accordance with the prevailing practices in the locality..." The amount for supplements listed on the enclosed schedule does not necessarily include all types of prevailing supplements in the locality, and a future determination of the Industrial Commissioner may require the Contractor to provide additional supplements.

The original payrolls or transcripts shall be preserved for three (3) years from the completion of the work on the awarded project by the Contracts. The School District shall receive such payroll record upon completion of project.

Irvington Union Free School District

**Board of Education**

6 Dows Lane

Irvington, New York 10533



## QUALIFICATIONS OF BIDDERS

**Experience and Qualifications of the Bidder:** Each bidder is required to submit the following documentation to demonstrate its experience and qualifications for the work of the Project for which a bid is submitted:

- a. A description of its experience with projects of comparative size, complexity, and cost, together with documentary evidence showing that said projects were completed to the Owner's satisfaction and were completed in a timely fashion;
- b. Documentation from each of the projects it has performed capital work in the last five (5) years concerning the bidder's:
  - (i) timeliness of performance of the work of the project
  - (ii) evidence that the project was completed to the Owner's satisfaction;
  - (iii) whether or not any extensions of time were requested by the contractor and whether or not such requests were granted;
  - (iv) whether litigation and/or arbitration was commenced by either the Owner or the bidder as a result of the work of the project performed by the bidder;
  - (v) whether any liens were filed on the project by subcontractors or material suppliers of the bidder;
  - (vi) whether the bidder was defaulted on the project by the owner;
  - (vii) whether the bidder made any claims for extra work on the project, including whether said claim resulted in a change order;
- c. Documentation evidencing the bidder's financial responsibility, including a certified financial statement prepared by a certified public accountant.
- d. Documentation evidencing the bidder's existence under the same name for the last five (5) years.
- e. Documentation evidencing the bidder's Worker's Compensation Experience Modification.



## STATEMENT OF BIDDER'S QUALIFICATIONS

**IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE ANSWER TO ALL OF THE QUESTIONS IN THIS STATEMENT. IF ADDITIONAL SPACE IS REQUIRED TO FURNISH A COMPLETE ANSWER, BIDDER MAY ATTACH PAGES AS NECESSARY. IN THE EVENT THAT COMPLETE ANSWERS ARE NOT PROVIDED TO EVERY QUESTION, THE BID WILL BE REJECTED.**

1. Name of Bidder

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2. Type of Business Entity

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3. If the bidder is a corporation, state the date and place of incorporation of the corporation.

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4. For how many years has the bidder done business under its present name?

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5. List the persons who are directors, officers, owners, managerial employees or partners in the bidder's business.

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6. Have any of the persons listed in Number 5 owned/operated/been shareholders in any other companies? If so, please state name of names of the other companies and the individuals who owned, operated, or have been shareholders:

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7. Has any director, officer, owner or managerial employee had any professional license suspended or revoked? If the answer to this question is yes, list the name of the individual, the professional license he/she formerly held, whether said license was revoked or suspended and the date of the revocation or suspension.

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8. Has the bidder been found guilty of any OSHA Violations? If the answer to this question is yes, describe the nature of the OSHA violation, an explanation of remediation or other steps taken regarding such violation(s).

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9. Has the bidder been charged with any claims pertaining to unlawful intimidation or discrimination against any employee by reason of race, creed, color, disability, sex or natural origin and/or violations of an employee's civil rights or equal employment opportunities? If the answer to this question is yes, list the persons making such claim against the bidder, a description of the claim, the status of the claim, and what disposition (if any) has been made regarding such claim.



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10. Has the bidder been named as a party in any lawsuit arising from performance of work related to any project in which it has been engaged? If the answer to this question is yes, list all such lawsuits, the index number associated with said suit and the status of the lawsuit at the time of the submission of this bid.

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11. Has the bidder been the subject of an investigation and/or proceedings before the Department of Labor for alleged violations of the Labor Law as it relates to the payment of prevailing wages and/or supplemental payment requirements? If the answer to this question is yes, please list each such instance of the commencement of a Department of Labor proceeding, for which project such proceeding was commenced, and the status of the proceeding at the time of the submission of this bid.

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12. Has the bidder been the subject of an investigation and/or proceeding before any law enforcement agency, including, but not limited to any District Attorney's Office? If the answer to this question is yes, please list each such instance, the law enforcement agency, the nature of the proceeding, the project for which such proceeding was commenced, if applicable to a project, and the status of the proceeding at the time of the submission of this bid.

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13. Has the bidder been the subject of proceedings involving allegations that it violated the Workers' Compensation Law, including but not limited to, the failure to provide proof of worker's compensation or disability coverage and/or any lapses thereof? If the answer to this question is yes, list each such instance of violation and the status of the claimed violation at the time of the submissions of this bid.

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14. Has the bidder, its officers, directors, owner and/or managerial employees been convicted of a crime or been the subject of a criminal indictment? If the answer to this question is yes, list the name of the individual convicted or indicted, the charge against the individual and the date of disposition of the charge.

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15. Has the bidder been charged with and/or found guilty of any violations of federal, state, or municipal environmental and/or health laws, codes, rules and/or regulations? If the answer to this question is yes, list the nature of the charge against the bidder, the date of the charge, and the status of the charge at the time of the submission of this bid.

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16. Has the bidder bid on any projects for the period September 1, 2012 to present? If the answer to this question is yes, list the projects bid on, whether said bid was awarded to the bidder and the expected date of commencement of the work for said project. For those projects listed, if the bidder was not awarded the contract, state whether the bidder was the lowest monetary bidder.

**IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #16 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED.**



17. Does the bidder have any projects ongoing at the time of the submission of this bid? If the answer to this question is yes, list the projects on which the bidder is currently working, the percentage complete, and the expected date of completion of said project.

**IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #17 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED.**

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18. Have the bidder and its bond surety ever been notified by a project Owner that the Owner is contemplating declaring a default and requested a conference to discuss the performance of the contract? If the answer to this question is yes, list the projects on which such a conference was held, and the result of the conference, and the status of the project in question.

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19. Has the bidder ever been terminated from a Project by the Owner? If the answer to this question is yes, list the projects on which the bidder was terminated, the nature of the termination (convenience, suspension, for cause), and the date of said termination.

**IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #19 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED.**

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20. Has the bidder's surety ever been contacted to provide supervisory services in connection with an on-going project. If the answer to this question is yes, list the project(s) for which the surety provided supervisory services.

**IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #20 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED.**

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21. Bidder's Worker's Compensation Experience Modifier: \_\_\_\_\_

Dated:

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name and Title)

Sworn to before me this \_\_\_\_\_  
day of \_\_\_\_\_, 20\_\_\_\_.

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



PROPOSAL (PA)  
Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School

Contract G - General Construction, Electrical, Plumbing and Asbestos Abatement Work

To: **Irvington Union Free School District**  
**6 Dows Lane**  
Irvington, New York 10533

For the furnishing and installing of materials for all work included under contract as follows:

Made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

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**Bidders Declaration:**

The party named as Bidder declares that the only person or persons interested in this bid or proposal as principal or principals is or are named herein; and that no other person than herein named has any interest in this proposal or in the contract proposed to be taken; that this bid or proposal is made without any connections with any other person and persons making a bid or proposal for the same purpose; that the bid or proposal is in all respects fair and without collusion or fraud; that it has examined the site of the work, the contract and specifications and the drawings referred to; and has read the Information for Bidders hereto attached; and it proposes and agrees, if this proposal is accepted, it will contract in the form as approved to perform all the work mentioned in said contract and specifications; and it will accept in full payment therefor the following sums to wit:



**Note: The bidder is asked to use either black ink or typewriter (black ribbon) in completing this proposal form. Each line item amount must be completed. Failure to do so will be grounds for disqualification of the bidder.**

<b>BASE BID: Contract G – General Construction, Electrical, Plumbing and Asbestos Abatement Work</b>
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**ITEM 1 – BONDS and INSURANCES**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 2 – DIVISION 1 – GENERAL REQUIREMENTS**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 3 – DIVISION 1 – PROJECT SUPERVISION**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 4 – DIVISION 2 – EXISTING CONDITIONS & DEMOLITION WORK**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 5 – DIVISION 2 – ASBESTOS REMOVAL**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 6 – DIVISION 4 – MASONRY**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 7 – DIVISION 5 – METALS**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 8 – DIVISION 6 – WOOD, PLASTICS AND COMPOSITES**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 9 – DIVISION 8 - OPENINGS**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 10 – DIVISION 9 - FINISHES**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 11 – DIVISION 12 – FURNISHINGS**

(written in words) \_\_\_\_\_ ( \$ )

**ITEM 12 – DIVISION 22 – PLUMBING**

(written in words) \_\_\_\_\_ ( \$ )



**ITEM 13 – DIVISION 26 – ELECTRICAL**

(written in words) \_\_\_\_\_ ( \$ \_\_\_\_\_ )

**ITEM 14 – PROJECT CLOSEOUT**

(written in words) \_\_\_\_\_ ( \$ \_\_\_\_\_ )

**ALLOWANCE G1 – ALLOWANCE FOR GENERAL CONTINGENCY**

(written in words) Thirty Thousand and 00 Cents ( \$30,000.00 )

**TOTAL BASE BID ( ITEMS 1 – 14 INCLUSIVE, PLUS ALLOWANCE G1)**

(written in words) \_\_\_\_\_ ( \$ \_\_\_\_\_ )

ALTERNATE WORK

THE CONTRACTOR SHALL CLEARLY STATE WHETHER COST INDICATED IS TO BE ADDED TO OR DEDUCTED FROM THE BASE BID COST. FAILURE TO CLEARLY STATE SAME WILL BE GROUNDS FOR DISQUALIFICATION OF THE BIDDER.

ALL WORK INCLUDED UNDER THIS HEADING SHALL BE SUBJECT TO THE GENERAL CONDITIONS OF THE PROJECT. ALL CONSTRUCTION, WORKMANSHIP AND FINISHES REQUIRED BY THE ALTERNATES SHALL BE AS SPECIFIED IN THE APPLICABLE SECTIONS OF THE SPECIFICATIONS MANUAL.

THE BIDDER PROPOSES AND AGREES THAT SHOULD THE FOLLOWING ALTERNATES BE ACCEPTED AND INCLUDED IN THE CONTRACT, THE AMOUNT OF THE TOTAL BASE BID WILL BE REVISED AS FOLLOWS. THE UNDERSIGNED FURTHER AGREES THAT SHOULD THE FOLLOWING ALTERNATES BE ACCEPTED, THE ALTERNATE BID PRICES INDICATED SHALL BE HELD AND HONORED FOR A PERIOD OF ONE YEAR FROM THE DATE OF CONTRACT SIGNING.

NUMBER	DESCRIPTION	COST
<b>G-1</b>	<b>BASEMENT LEVEL WORK</b> Provide all labor, material and equipment required and as specified for work related to diving Classroom G2 in to two spaces, excluding light fixtures (labor and material)	\$ _____ Is
<b>G-2</b>	<b>BASEMENT LEVEL LIGHT FIXTURES</b> Provide all labor, material and equipment required and as specified for work related to new light fixtures in new Service Room G2A and G2B.	\$ _____ Is



<b>G-3</b>	<b>FIRST FLOOR LIGHT FIXTURES</b> Provide all labor, material and equipment required and as specified for work related to new light fixtures in Corridor 100A, PLTW Classroom 113, Library 114, Librarian Office 114C, and PLTW Classroom 115.	\$ _____ Is
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<b>TOTAL BID ( ITEMS 1 – 29 INCLUSIVE, PLUS ALLOWANCE G1 AND ALTERNATE G-1, G-2 &amp; G-3)</b> (written in words) _____ ( \$ _____ )
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**Note: The IRVINGTON UNION FREE SCHOOL DISTRICT is exempt from Federal, New York State and local taxes. TOTAL AMOUNT BID shall be exclusive of all taxes.**

EACH BIDDER SHALL SUBMIT WITH IT'S BID A SEPARATE SEALED LIST THAT NAMES THE SUBCONTRACTORS THAT THE BIDDER WILL USE TO PERFORM WORK AND THE AGREED UPON AMOUNT TO BE PAID FOR A.) HEATING, VENTILATION AND AIR-CONDITIONING WORK, B.) PLUMBING WORK AND C.) ELECTRICAL WORK. AFTER THE LOW BID IS ANNOUNCED, THE SEALED LIST OF SUBCONTRACTORS SUBMITTED BY THE APPARENT LOW BIDDER SHALL BE OPENED AND THE NAMES OF THE SUBCONTRACTORS ANNOUNCED. ANY CHANGE OF SUBCONTRACTOR OR AGREED UPON AMOUNT TO BE PAID SHALL REQUIRE THE APPROVAL OF THE PUBLIC OWNER, UPON A SHOWING OF "LEGITIMATE CONSTRUCTION NEED" FOR SUCH CHANGE.

"LEGITIMATE CONSTRUCTION NEED" SHALL INCLUDE, BUT NOT BE LIMITED TO:

A CHANGE IN PROJECT SPECIFICATIONS,  
A CHANGE IN CONSTRUCTION MATERIAL COSTS,  
A CHANGE IN SUBCONTRACTOR STATUS, OR  
THE SUBCONTRACTOR HAS BECOME UNWILLING, UNABLE OR UNAVAILABLE TO PERFORM THE SUBCONTRACT.

THE SEALED LISTS OF SUBCONTRACTORS SUBMITTED BY ALL OTHER BIDDERS SHALL BE RETURNED TO THEM UNOPENED AFTER THE CONTRACT AWARD.

PAYMENTS TO SUBCONTRACTORS AND MATERIAL MEN MUST BE MADE WITHIN 7 CALENDAR DAYS AS OPPOSED TO 15 CALENDAR DAYS OF THE RECEIPT OF PAYMENT FROM THE PUBLIC OWNER. FAILURE TO PAY WITHIN 7 CALENDAR DAYS WILL RESULT IN INTEREST DUE FOR ALL CALENDAR DAYS SUBSEQUENT TO THE SEVENTH DAY THROUGH THE DATE THAT PAYMENT IS MADE.

THE BIDDER UNDERSTANDS THAT THE OWNER RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS AND TO WAIVE ANY INFORMALITIES IN THE BIDDING.

THE BIDDER AGREES THAT THE BID SHALL BE GOOD AND MAY NOT BE WITHDRAWN FOR A PERIOD OF **FORTY-FIVE (45)** CALENDAR DAYS AFTER THE SCHEDULED CLOSING TIME FOR RECEIVING BIDS.



THE BIDDER HAS SUBMITTED ALL REQUESTS FOR OTHER BRAND NAMES OR PRODUCTS NOT LISTED IN THE SPECIFICATIONS IN ACCORDANCE WITH ARTICLE 6(W) OF THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION.

**SITE SUPERVISION**

**THE SUCCESSFUL CONTRACTOR IS TO PROVIDE FULL TIME SITE SUPERVISION FOR HIS OR HER STAFF, SUBCONTRACTORS AND SUPPLIERS FOR THE DURATION OF THIS PROJECT. A COMPETENT SUPERINTENDENT SHALL BE IN ATTENDANCE AT THE JOB SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED UNDER THEIR CONTRACT. THE SUPERINTENDENT IS RESPONSIBLE TO VISIT THE JOB SITE DAILY WHEN WORK IS NOT BEING PERFORMED UNDER THEIR CONTRACT AND TO MONITOR THE OVERALL CONSTRUCTION PROGRESS. A QUALIFIED SITE SUPERINTENDENT MUST HAVE THE AUTHORITY TO REPRESENT AND MAKE DECISIONS FOR HIS OR HER COMPANY WITH REGARDS TO THE SUBJECT JOB, MUST BE ABLE TO GIVE GUIDANCE AND DIRECTION TO EMPLOYEES, SUBCONTRACTORS AND SUPPLIERS, AND MUST BE KNOWLEDGEABLE ABOUT THE WORK TO BE PROVIDED. FAILURE TO PROVIDE A QUALIFIED SITE SUPERINTENDENT AT THE JOB SITE SHALL SUBJECT SAID PRIME CONTRACTOR TO A PENALTY OF \$1,000 PER DAY FOR EVERY OCCURRENCE.**

**TIME OF COMPLETION**

**ALL WORK UNDER THIS CONTRACT SHALL BE COMPLETED BETWEEN THE FOLLOWING HOURS, IN ACCORDANCE WITH THE FOLLOWING DATES:**

<b>WORK DAYS:</b>	<b>MONDAY – FRIDAY</b>
<b>WORK HOURS:</b>	<b>7:00 AM – 5:00 PM</b>
<b>WEEKEND WORK DAYS:</b>	<b>SATURDAY</b>
<b>WEEKEND WORK HOURS:</b>	<b>9:00 AM – 5:00 PM</b>
<b>CONSTRUCTION START DATE:</b>	<b>MONDAY, JUNE 27, 2022</b>
<b>SUBSTANTIAL COMPLETION:</b>	<b>TUESDAY, AUGUST 30, 2022</b>
<b>FINAL COMPLETION:</b>	<b>FRIDAY, SEPTEMBER 30, 2022</b>

**IF NECESSARY, WEEKEND, HOLIDAY AND EVENING WORK SHALL BE PROVIDED TO ENSURE THE COMPLETION DATES LISTED ABOVE, AT THE SOLE COST AND EXPENSE OF THE BIDDER.**

FAILURE OF THE CONTRACTOR TO COMPLETE WORK BY THE SPECIFIED TIME SHALL SUBJECT HIM/HER TO LIQUIDATED DAMAGES AS SET FORTH IN ARTICLE 13 OF THE GENERAL CONDITIONS.

THE ARCHITECT/ENGINEER SHALL ACT AS THE RECORD KEEPER OF CONTRACT DAYS; HE WILL BE THE SOLE JUDGE OF DELAYS CAUSED BY WEATHER. ONLY WEATHER DELAYS, AS ADJUDGED BY THE ARCHITECT/ENGINEER, WILL BE CONSIDERED FOR EXTENSIONS OF THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL SUBMIT A BI-WEEKLY REQUEST FOR DELAYS DUE TO WEATHER TO THE ARCHITECT/ENGINEER FOR APPROVAL. NO OTHER DELAY CLAIMS WILL BE ACCEPTED, FOR CREDIT TOWARDS THE PROJECT COMPLETION SCHEDULE, REGARDLESS OF THE SOURCE OF THE DELAY.

FAILURE OF THE CONTRACTOR TO COMPLETE ALL WORK SHOWN AND SPECIFIED IN THE CONTRACT DOCUMENTS, BY ALL OF THE SPECIFIED TIME FRAMES, SHALL SUBJECT THE



CONTRACTOR TO LIQUIDATED DAMAGES, AS SET FORTH IN ARTICLE 13 OF THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, IN THE SUM OF ONE THOUSAND DOLLARS (\$1,000.00) PER CALENDAR DAY. SUCH DAMAGES WILL COMMENCE ON THE DAY AFTER THE COMPLETION DATE OR THE DAY AFTER ANY LISTED MILESTONE DATE IN THE NOTICE TO PROCEED.

WITHIN TEN (10) CONSECUTIVE CALENDAR DAYS AFTER THE DATE OF THE NOTICE OF AWARD, THE BIDDER SHALL EXECUTE THE CONTRACT AND FURNISH THE REQUIRED PERFORMANCE BOND, PAYMENT BOND AND INSURANCES.

**THE BOARD OF EDUCATION OF THE DISTRICT RESERVES THE RIGHT TO AWARD THIS CONTRACT TO OTHER THAN THE LOW BIDDER IF THE LAW SO PERMITS.**

THE UNDERSIGNED HEREBY ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDA (IF ANY):

ADDENDUM NO.

DATED

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SPECIFIC DAMAGES WILL BE ASSESSED AND DEDUCTED FROM AMOUNTS OTHERWISE DUE THE CONTRACTOR FOR ADDITIONAL INSPECTION (FIELD) AND CONTRACT ADMINISTRATION (OFFICE) TIME EXPENDED BY THE ARCHITECT/ENGINEER AND/OR OTHER CONSTRUCTION EMPLOYEE(S) HIRED TO ADMINISTER OR OBSERVE THE CONTRACT, SHOULD THE CONTRACTOR COMPLETE THE CONTRACT BEYOND THE CONTRACT COMPLETION PERIOD SPECIFIED ABOVE.**

**SUCH DEDUCTION SHALL BE IN ACCORDANCE WITH THE ARCHITECT, ENGINEER'S, AND/OR OTHER CONSTRUCTION EMPLOYEE(S) STANDARD HOURLY BILLING RATES IN EFFECT AT THE TIME FOR THE SCHOOL DISTRICT.**

**THE REQUIREMENTS OF THE PROPOSAL HAVE BEEN COMPLETELY READ, UNDERSTOOD AND ACKNOWLEDGED BY THE BIDDER.**

BIDDER: \_\_\_\_\_

BIDDER'S ADDRESS: \_\_\_\_\_

SIGNED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

Telephone number where the contractor or a competent representative can accept a telephone message and provide a reasonable reply as soon as possible, but not later than twenty-four (24) hours:

DAY: ( ) \_\_\_\_\_ NIGHT: ( ) \_\_\_\_\_



NOTICE TO BIDDERS  
IRVINGTON UNION FREE SCHOOL DISTRICT



FAX: (\_\_\_\_) \_\_\_\_\_

FEDERAL I.D. NO. OR SOCIAL SECURITY NO.: \_\_\_\_\_



PROPOSAL (PC)  
Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School

Enclosed in the bid package is a certified check or bid bond for ten percent (10%) of the total amount of each of the school project bid as required by the foregoing "Information for Bidders."

On the signing of such contract by the Bidder, the bidder hereby agrees to furnish the indemnifying bonds as provided in the General Conditions.

The Bidder hereby further agrees that in the event of its failure or refusal to enter into a contract in accordance with this bid within ten (10) business days after due notice from the Board of Education that the contract has been awarded to it and is ready for signature, as given in accordance with the Information for Bidders and/or its failure to execute and deliver the bond for the full amount of the contract price, as provided in said Information for Bidders, the Bidder's check or bid bond which is herewith deposited with the Board shall (at the option of said Board) become due and payable as ascertained and liquidated damages for such default; otherwise, said check or bid bond will be returned to the undersigned.

The full names and residences of all persons and parties interested in the foregoing bid as principals are as follows:

Name	Address
_____	_____
_____	_____
_____	_____

Name of Bidder: \_\_\_\_\_

Business Address of Bidder: \_\_\_\_\_

\_\_\_\_\_



## INSURANCE CERTIFICATION

Your insurance representative must complete the form below to be considered for the award of this bid or project, and it is important that you complete the Bidder's Acknowledgement section of this form. Please note that this Insurance Certification for must accompany your bid submission for your bid to be considered.

### Insurance Representative's Acknowledgement:

We have reviewed the insurance requirements set forth in the Supplementary Conditions Article 10 & 11 of the specifications and can provide such insurance to our insured in accordance with such requirements in the event the contract is awarded to our insured and provided our insured pays the appropriate premium.

Insurance Representative:

Address:

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Are you an agent for the companies providing the coverage? Yes \_\_\_\_\_ No \_\_\_\_\_

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

Insurance Representative's Signature

### **Bidder's Acknowledgement:**

I acknowledge that I have received the insurance requirements of this bid and have considered the costs, if any, of procuring the required insurance and will be able to supply the insurance required in accordance with the bid, if it is awarded. I understand that this Insurance Certification form must be submitted with my bid and my inability to provide the required insurances may result in the rejection of my bid, and the Irvington Union Free School District may award the contract to the next lowest/responsive bidder.

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

Address: \_\_\_\_\_

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

Bidder's Signature



**NON-COLLUSIVE FORM BIDDING CERTIFICATE**  
**BID PROPOSAL CERTIFICATIONS**

Firm Name \_\_\_\_\_

Business Address \_\_\_\_\_

Telephone Number \_\_\_\_\_ Date of Bid \_\_\_\_\_

**I. General Bid Certification**

The bidder certifies that he will furnish, at the prices quoted, the materials, equipment and/or services as proposed on this Bid.

**II. Non-Collusive Bidding Certification**

The following statement is made pursuant to Section 103-D of the General Municipal Law, as amended by Chapter 675 of the Laws of 1966, and Section 139-D of the State Finance Law, as amended by Chapter 675 of the Laws of 1966, and Section 2604 of the Public Authorities Law, as amended by Chapter 675 of the Laws of 1966.

By submission of this bid proposal, the bidder certifies that he/she is complying with Section 103-d of the General Municipal Law as follows:

Statement of non-collusion in bids and proposals to political subdivision of the state. Every bid or proposal hereafter made to a political subdivision of the state or any public department, agency or official thereof where competitive bidding is required by statute, rule, regulation, or local law, for work or services performed or to be performed or goods sold or to be sold, shall contain the following statement subscribed by the bidder and affirmed by such bidder as true under the penalties of perjury:

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 its 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.

- (b) A bid shall not be considered for award nor shall any award be made where (a) (1) (2) and (3) above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the reasons therefor. Where (a) (1) (2) and (3) above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department agency or official thereof to which the bid is made or his designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of subparagraph one (a).

- (c) Any bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certifications referred to in subdivision II of this section, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing, and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of corporation.

- (d) The person signing this Bid or Proposal certifies that he has fully informed himself/herself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the Bidder as well to the person signing in his/her behalf."

Signature of Bidder: \_\_\_\_\_  
(Signature of bidder or authorized representative of a corporation)

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

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_



### **HOLD HARMLESS AGREEMENT**

In accordance with Article 12 of the General Conditions, Indemnification, the Contractor will be required to sign the following "Hold Harmless" Agreement with the BOARD OF EDUCATION. Compliance with the foregoing requirements for insurance shall not relieve the Contractor from liability set forth under the Indemnity Agreement.

The undersigned hereby agrees to defend, indemnify, and save harmless the BOARD OF EDUCATION, its officers and employees from and against any and all liability, loss, damages, claims for bodily injury and/or property damages, cost and expense, including counsel fees, to the extent permissible by law, that may occur or that may be alleged to have occurred in the course of the performance of this agreement by the contractor, whether such claims shall be made by an employee of the contractor or by a third party, the contractor covenants and agrees that he / she will pay all costs and expenses arising therefrom and in connection therewith, and if any judgment shall be rendered against the Owner, Architect/Engineer & Construction manager, in any such litigation, the Contractor shall at his / her own expense satisfy and discharge the same.

By: \_\_\_\_\_  
(Signature of Authorized Representative of Corporation)

\_\_\_\_\_  
(Print Name and Title)

\_\_\_\_\_  
(Date)



## CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

As a result of the Iran Divestment Act of 2012 (the "Act"), Chapter 1 of the 2012 Laws of New York, a new provision has been added to State Finance Law (SFL) § 165-a and New York General Municipal Law § 103-g, both effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list of "persons" who are engaged in "investment activities in Iran" (both are defined terms in the law) (the "Prohibited Entities List"). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act's effective date at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, each Bidder/Contractor, any person signing on behalf of any Bidder/Contractor and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies, under penalty of perjury, that once the Prohibited Entities List is posted on the OGS website, that to the best of its knowledge and belief, that each Bidder/Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to SFL § 165-a(3)(b).

Additionally, Bidder/Contractor is advised that once the Prohibited Entities List is posted on the OGS Website, any Bidder/Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to this solicitation must certify at the time the Contract is renewed, extended or assigned that it is not included on the Prohibited Entities List.

During the term of the Contract, should the School District receive information that a Bidder/Contractor is in violation of the above-referenced certification, the School District will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he/she/it has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the School District shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the Bidder/Contractor in default. The School District reserves the right to reject any bid or request for assignment for a Bidder/Contractor that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any Bidder/Contractor that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, \_\_\_\_\_, being duly sworn, deposes and says that he/she is the \_\_\_\_\_ of the \_\_\_\_\_ Corporation and that neither the Bidder/ Contractor nor any proposed subcontractor is identified on the Prohibited Entities List.

\_\_\_\_\_  
(SIGNED)

SWORN to before me this

\_\_\_\_\_ day of \_\_\_\_\_

2021

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



**DECLARATION OF BIDDER'S INABILITY TO PROVIDE CERTIFICATION OF COMPLIANCE WITH  
THE IRAN DIVESTMENT ACT**

***Bidders shall complete this form if they cannot certify that the bidder /contractor or any proposed subcontractor is not identified on the Prohibited Entities List. The District reserves the right to undertake any investigation into the information provided herein or to request additional information from the bidder.***

Name of the Bidder: \_\_\_\_\_

Address of Bidder: \_\_\_\_\_

Has bidder been involved in investment activities in Iran? \_\_\_\_\_

Describe the type of activities including but not limited to the amounts and the nature of the investments (e.g. banking, energy, real estate) \_\_\_\_\_

If so, when did the first investment activity occur? \_\_\_\_\_

Have the investment activities ended? \_\_\_\_\_

If so, what was the date of the last investment activity? \_\_\_\_\_

If not, have the investment activities increased or expanded since April 12, 2012? \_\_\_\_\_

Has the bidder adopted, publicized, or implemented a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran? \_\_\_\_\_

If so, provide the date of the adoption of the plan by the bidder and proof of the adopted resolution, if any and a copy of the formal plan. \_\_\_\_\_

In detail, state the reasons why the bidder cannot provide the Certification of Compliance with the Iran Divestment Act below (additional pages may be attached):

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

I, \_\_\_\_\_ being duly sworn, deposes and says that he/she is the \_\_\_\_\_ of  
the \_\_\_\_\_ Corporation and the foregoing is true and accurate.

SWORN to before me this

\_\_\_\_\_  
SIGNED

\_\_\_\_\_ day of \_\_\_\_\_

2021

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



SEXUAL HARASSMENT CERTIFICATION  
Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

**H2M**

**IRVINGTON UNION FREE SCHOOL DISTRICT  
INNOVATION SUITE AT DOWS LANE ELEMENTARY SCHOOL**

**SEXUAL HARASSMENT CERTIFICATION**

The following certification must be submitted with all bids submitted after January 1, 2019 pursuant to N.Y. State Finance Law § 139-1(1)(a).

"By submission of this bid/proposal, each Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint bid each party thereto certifies 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 of its employees. Such policy shall, at a minimum, meet the requirements of Section 201-g of the Labor Law."

Dated: \_\_\_\_\_  
(Signature Here)

\_\_\_\_\_  
(Signatory's Name Printed)

\_\_\_\_\_  
(Name of Bidder)



## LIST OF SUBCONTRACTORS

### **List of Subcontractors**

The Bidder shall list the subcontractors, if any, to be used for this project. Provide the required information for each proposed subcontractor. Make appropriate copies of this form should the Bidder propose more than five (5) subcontractors. List at least five projects for each subcontractor that demonstrates the subcontractor's qualifications to perform the work of the project. The projects shall be similar size and complexity and have been completed within the last five (5) years by the subcontractor.

(NOTE THIS FORM MUST BE COMPLETED BY BIDDER AND INCLUDED IN ENVELOPE MARKED QUALIFICATIONS)

**Subcontractor Name:** \_\_\_\_\_

**Type of Work:** \_\_\_\_\_

<b><u>Owner</u></b>	<b><u>Contact Name</u></b>	<b><u>Phone Number</u></b>	<b><u>Location</u></b>	<b><u>Contract Amount</u></b>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____



LIST OF SUBCONTRACTORS

**Subcontractor Name:**\_\_\_\_\_

**Type of Work:**\_\_\_\_\_

<u>Owner</u>	<u>Contact Name</u>	<u>Phone Number</u>	<u>Location</u>	<u>Contract Amount</u>

**Subcontractor Name:**\_\_\_\_\_

**Type of Work:**\_\_\_\_\_

<u>Owner</u>	<u>Contact Name</u>	<u>Phone Number</u>	<u>Location</u>	<u>Contract Amount</u>



## NYSED 155.5 REGULATIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies requirements of 8NYCRR155.5, Uniform Safety Standards for School Construction and Maintenance Projects, that are required in construction documents. The Contractor shall comply with these requirements in addition to any and all similar requirements in the Contract Documents.

#### 1.3 REQUIREMENTS

- A. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy. In addition, the following shall be strictly enforced and cooperated with:
  - 1. No smoking is allowed on public school property, including construction areas.
  - 2. During construction daily inspections of district occupied areas shall be conducted by school district personnel to assure that construction materials, equipment or debris do not block fire exits or emergency egress windows.
  - 3. Proper operation of fire extinguishers, fire alarm, and smoke/fire detection systems shall be maintained throughout the project.
- B. Verify that all school areas to be disturbed during renovation or demolition have been or will be tested for lead and for asbestos. For any project work that disturbs surfaces that contain lead or asbestos, follow the plans and specifications 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 HUD Guidelines.
  - 1. All asbestos abatement projects shall comply with all applicable federal and State laws including but not limited to the New York



State Department of Labor industrial code rule 56(12NYCRR56), and the federal Asbestos Hazard Emergency Response Act (AHERA), 40 CFR Part 763 (Code of Federal Regulations, 1998 Edition); available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234.

2. Any construction or maintenance operations which will disturb lead-based paint will require abatement of those areas pursuant to protocols detailed in the "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing", June 1995; U.S. Department of Housing and Urban Development (HUD), Washington, D.C. 20410; available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234.

C. General Safety and Security Standards for Construction Projects:

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 warnings 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.

D. Separation of construction areas from occupied spaces. 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 may be assigned for construction worker use during the work hours. In general,



workers may not use the 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 or occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.
3. All occupied parts of the buildings 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.

E. The Architect will prepare phasing plans indicating exiting, required by the applicable building code, which shall be maintained during construction.

1. The Contractor shall submit plans, to be approved by the Architect, indicating temporary construction required to isolate construction equipment, materials, people, dust, fumes, odors, and noise during the construction period and meeting the requirements of the phasing plans.
2. Temporary construction details shall meet code-required fire ratings for separation and corridor enclosure.
3. At a minimum, required exits, temporary stairs, ramps, exit signs, and door hardware shall be provided at all times.

F. Prepare a plan detailing how adequate ventilation will be maintained during construction.

1. The plan shall indicate ductwork which must be rerouted, disconnected, or capped in order to prevent contaminants from the construction area from entering the occupied areas of the building.
2. The plan shall also indicate how required ventilation to occupied spaces affected by construction will be maintained during the project.

G. 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.



- H. The contractor shall be responsible for the control of chemical fumes, gases, and other contaminants produced by welding, gasoline or diesel engines, roofing, paving, painting, etc. to ensure they do not enter occupied portions of the building or air intakes.
- I. 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.
- J. Large and small asbestos abatement projects as defined by 12NYCRR56 shall not be performed while the building is occupied. The term "building", as used in this paragraph, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion, and ventilation systems must be physically separated and sealed at the isolation barrier.
- K. 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.



AGREEMENT  
IRVINGTON UNION FREE SCHOOL DISTRICT  
DOWS LANE ELEMENTARY SCHOOL INNOVATION SUITE

AGREEMENT made as of the      day of      in the year of Two Thousand and Twenty One.

BETWEEN the Owner  
(Name and address)

**IRVINGTON UNION FREE SCHOOL DISTRICT**  
6 DOWS LANE  
IRVINGTON, New York 10533

and the Contractor:  
(Name and address)

**TBD**  
**TBD**

The Project is:  
(Name and location)

**DOWS LANE ELEMENTARY SCHOOL INNOVATION SUITE**  
6 DOWS LANE  
IRVINGTON, NY 10533

The Architect is:  
(Name and address)

**H2M architects + engineers**  
2700 Westchester Avenue  
Suite 415  
Purchase, NY 10577

The Owner and Contractor agree as set forth below.



**ARTICLE 1**  
**THE CONTRACT DOCUMENTS**

The Contract Documents consist of this Agreement, Conditions of the Contract (General Conditions, Special Provisions and other Conditions), Drawings, specifications, Addenda issued prior to execution of this Agreement, other documents listed in Article 9 of this Agreement and Modifications issued after execution of this Agreement; these form the Contract, and are 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 execute the entire Work described in the Contract Documents or reasonably inferable by the Contractor as necessary to produce the results intended by the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

**ARTICLE 3**  
**DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**

- 3.1** The date of commencement of the work and substantial completion of the work of this contract shall be in accordance with the schedule set forth in the Project Manual.
- 3.2** Time is of the essence respecting the contract documents and all obligations thereunder.
- 3.3** Upon the execution of this Agreement, the Contractor shall provide the Owner with copies of all contracts entered into between the Contractor and subcontractors or material suppliers. The Contractor's obligation to provide the Owner with said contracts shall continue for the duration of the Project.

**ARTICLE 4**  
**CONTRACT SUM**

- 4.1** The Owner shall pay the Contractor in current funds for the Contractor's performance of the Contract the Contract Sum of (written contract amount), subject to additions and deductions as provided in the Contract Documents.
- 4.2** The Contract Sum is based upon the following alternates, if any, which are described in the Bid Proposal Form (attached hereto) and are hereby accepted by the Owner:  
(Insert Alternates)
- 4.3** Unit prices are as set forth in the proposal sheets.

**ARTICLE 5**  
**PROGRESS PAYMENTS**

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



AGREEMENT  
IRVINGTON UNION FREE SCHOOL DISTRICT  
DOWS LANE ELEMENTARY SCHOOL INNOVATION SUITE

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

All progress payments shall be based upon an estimate and a certificate, made by the Architect, of the materials furnished, installed and suitably stored at the site and the work done by the Contractor, and payment shall be made in installments of ninety-five percent (95%) of the amount certified as earned so that, at the completion of the work, there will be a retainage of five percent (5%) of the Total Contract Sum. Retainage shall be paid to the Contractor upon final completion of the work of this contract. All progress payments made previous to the last and final payment shall be based on estimates and the right is hereby reserved by the Architect for the Owner to make all due and proper corrections in any payment for any previous error.

The Contractor shall submit with each application for payment the following:

1. A current Sworn Statement from the Contractor setting forth all subcontractors and materialmen with whom the Contractor has subcontracted, the amount of such subcontract, the amount requested for any subcontractor or materialman in the application for payment and the amount to be paid to the Contractor from such progress payment;
2. Commencing with the second (2nd) Application for Payment submitted by the Contractor, duly executed so-called "after the fact" waivers of mechanics' and materialmen's liens from all subcontractors, materialmen and, when appropriate, from lower tier subcontractors, establishing receipt of payment or satisfaction of payment of all amounts requested on behalf of such entities and disbursed prior to submittal by the Contractor of the current Application for Payment, plus sworn statements from all subcontractors, materialmen and, where appropriate, from lower tier subcontractors, covering all amounts described in this Paragraph 5.2;
3. Such other information, documentation and materials as the Owner or the Architect may require.

- 5.3** Payment shall not be released to the Contractor until the Owner receives the following documentation:

1. Certified payroll for employees and employees of subcontractors performing work on the Project.
2. Copies of invoices submitted to the Contractor by its subcontractors and/or material suppliers.

**ARTICLE 6**  
**FINAL PAYMENT**

Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when (1) the Contract has been fully performed including compliance with all provisions of the Contract Documents except for the Contractor's responsibility to correct nonconforming Work under Article 15(B) of the General Conditions and to satisfy other requirements, if any, which necessarily survive final payment; and (2) a final Certificate for Payment has been issued by the Architect; such final payment shall be made by the Owner not more than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows or as soon thereafter as is practicable.



**ARTICLE 7**  
**MISCELLANEOUS PROVISIONS**

- 7.1** Where reference is made in this Agreement to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.
- 7.2** The Contractor represents and warrants the following to the Owner (in addition to any other representations and warranties contained in the Contract Documents) as an inducement to the Owner to execute this Agreement, which representations and warranties shall survive the execution and delivery of this Agreement, any termination of this Agreement and the final completion of the Work:
1. that it and its Subcontractors are financially solvent, able to pay all debts as they mature and possessed of sufficient working capital to complete the Work and perform all obligations hereunder;
  2. that it is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform its obligations hereunder;
  3. that it is authorized to do business in the State of New York and the United States and properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over it and over the Work and the Project;
  4. that its execution of this Agreement and its performance thereof is within its duly authorized powers;
  5. that its duly authorized representative has visited the site of the Project, is familiar with the local and special conditions under which the Work is to be performed and has correlated on-site observations with the requirements of the Contract Documents; and
  6. that it possesses a high level of experience and expertise in the business administration, construction, construction management and superintendence or projects of the size, complexity and nature of the particular Project, and that it will perform the Work with the care, skill and diligence of such a contractor.

The foregoing warranties are in addition to, and not in lieu of, any and all other liability imposed upon the Contractor by law with respect to the Contractor's duties, obligations and performance hereunder. The Contractor's liability hereunder shall survive the Owner's final acceptance of and payment for the Work. All representations and warranties set forth in this Agreement, including without limitation, this Paragraph 7.2, shall survive the final completion of the Work or the earlier termination of this Agreement. The Contractor acknowledges that the Owner is relying upon the Contractor's skill and experience in connection with the Work called for hereunder.

**ARTICLE 8**  
**TERMINATION OR SUSPENSION**

- 8.1** The Contract may be terminated by the Owner as provided in the General Conditions.
- 8.2** The Work may be suspended by the Owner as provided in the General Conditions.



**ARTICLE 9**  
**ENUMERATION OF CONTRACT DOCUMENTS**

- 9.1** The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:
- 9.1.1** The Agreement is this executed Agreement Between Owner and Contractor.
- 9.1.2** The General Conditions are the General Conditions of the Contract for Construction as set forth in the Project Manual and attached hereto.
- 9.1.3** The Specifications are as set forth in the Project Manual and indexed in Exhibit "B" hereto.
- 9.1.4** The Drawings are those as indexed in Exhibit "C" hereto.
- 9.1.5** The Addenda, if any, are as follows:

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

**OWNER**

**CONTRACTOR**

**Irvington Union Free School District**  
6 Dows Lane  
Irvington, NY 10533

By \_\_\_\_\_  
(Signature)

By \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Printed name and title)



***GENERAL CONDITIONS***  
***of the***  
***CONTRACT for CONSTRUCTION***



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## **GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION**

The within document includes detailed provisions concerning the capital improvement work to be performed by the Contractors engaged by the School District. This document contains provisions which relate particularly to capital improvement projects in the school district setting in New York State. The document is incorporated by reference into all contracts to be awarded and should be reviewed carefully by the Contractor to whom the award of contract is made. Consultation with an attorney and insurance representative is advised.

### **ARTICLE 1 DEFINITIONS**

- A. "Addendum" or "Addenda" refers to revised drawings and/or written requirements for the capital improvement work issued by the Architect prior to the time indicated for submission of a bid by a contractor.
- B. The "Architect" is the design professional engaged by the School District to perform design related functions respecting the capital improvement projects to be performed in the School District.
- C. "Board of Education" refers to the Board of Education of the School District.
- D. "Central Administration" refers to the Superintendent of Schools, his/her Assistant Superintendents, and Director of Plant & Facilities.
- E. The "Construction Manager" is the entity engaged by the School District to act as its representative during the course of construction of the Project.
- F. The "Contractor" refers to the entity engaged by the School District to perform all or a part of the capital improvement project on its behalf.
- G. The "Drawings" are the plans, elevations, sections, details, schedules and diagrams developed by the Architect for the capital improvement projects to be performed in accordance with the project manual of which these General Conditions of the Contract for Construction form a part.
- H. The "Project" refers to the entire capital improvement project to be performed in accordance with the project manual and may include work by the Owner.
- I. The "Project Manual" is the bound document which is issued simultaneously with the project Drawings and includes the Notice to Bidders, Information to Bidders, Bid Proposal Form, Prevailing Wage Rate schedule and the written requirements for labor, materials, equipment, construction systems and the like necessary for the Contractor to complete the capital improvement work for which it has been engaged.



J. The "Owner" refers to the School District, the Board of Education, its officers, agents and employees.

K. A "Subcontractor" is a person or entity who has a direct contract with the Contractor to provide material and/or labor for the project on or off the site, or to otherwise furnish labor, material or other services with respect to a portion of the Contractor's work. A "Sub-subcontractor" is a person or entity who has a direct or indirect contract with a Subcontractor engaged by the Contractor to perform a portion of the Subcontractor's work at the site, or to otherwise furnish labor, material or other services with respect to a portion of the Subcontractor's work.

L. The term "Specialist" or "Specialty Contractor" as used in these specifications shall mean an individual or firm of established reputation, or, if newly organized, whose personnel have previously established a reputation in the same field, which is regularly engaged in, and which maintains a regular force of workers skilled in either manufacturing or fabricating items required by the Contract, installing items required by the Contract, or otherwise performing work required by the Contract.

M. "Accepted", "directed" "permitted," "requested," "required," and "selected" mean, unless otherwise explained, "accepted by the Architect and/or Owner" "directed by the Architect and/or Owner," "permitted by the Architect and/or Owner," "requested by the Architect and/or Owner," "required by the Architect and/or Owner," and "selected by the Architect and/or Owner." However, no such implied meaning will be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.

N. "As accepted" "or acceptable substitute", and "for review" mean the Architect is the sole judge of the quality and suitability of the proposed substitutions. Where used in conjunction with the Architect's response to submittals, requests, applications, inquiries, reports, and claims by the Contractor, the meaning will be held to the limitations of the Architect's responsibilities and duties as stated in the General Conditions. In no case will "accepted by the Architect" be interpreted as an assurance to the Contractor that the requirements of the Contract Documents have been fulfilled.

O. "Furnish" means supply and deliver to the Project site or other designated location, ready for unloading, unpacking, storing, assembly, installation, application, erection, or other form of incorporation into the Project, and maintained ready for use. Supply and deliver products requiring additional or supplemental fitting, assembly, fabrication, or incorporation into other elements of the Project directly to the fabricator, installer or manufacturer as required.

P. "Install" means unload, unpack, use, fit, attach, assemble, apply, place, anchor, erect, finish, cure, protect, clean, and similar operations required to properly incorporate work into the Project.

Q. "Provide" means furnish and install.



R. "Replace" means remove designated, damaged, rejected, defective, unacceptable, or non-conforming work from the Project and provide new work meeting the requirements of the Contract Documents in place thereof.

S. The word "include", in any form other than "inclusive", is non-limiting and is not intended to mean all-inclusive.

## ARTICLE 2 CONTRACTOR'S REPRESENTATIONS

A. Upon submission of its bid to the Owner, the Contractor expressly represents:

1. The Contractor represents and warrants that it performed a detailed investigation of the site(s) and that such investigation was sufficient to disclose the conditions of the site(s) at which work is to be performed by it and all improvements thereon, and the conditions under which the work is to be performed, including, but not limited to (a) the location, condition, layout and nature of the project site and surrounding areas; (b) the cost of labor, materials and equipment necessary to perform the work, the availability; (c) the areas of the work which will cause a disruption to the necessary and proper operation of the facilities by the Owner; and (d) other pertinent limitations on the performance of its work.

2. The Contractor represents and warrants that it has carefully studied and compared the drawings and pertinent provisions of the project manual and that any errors, omissions, ambiguities, discrepancies or conflicts found in said documents have been brought to the attention of the Architect for clarification prior to the Contractor's submission of its bid. If, in the interpretation of Contract Documents, requirements within the Drawings and Specifications conflict, or it appears that the Drawings and Specifications are not in agreement, the requirement to be followed shall be decided by the Architect. Where there is a discrepancy in quantity, the Contractor shall provide the greater quantity; where there is a discrepancy in quality, the Contractor shall provide the superior quality. Addenda supersede the provisions that they amend.

3. Each contractor certifies that it is experienced and familiar with the requirements and conditions imposed during the construction of similar work in the area. This includes, but is not limited to, "out of sequence" or "come back" work for the removal of plant, equipment, temporary wiring or plumbing, etc. This "out of sequence" work may also include phasing of construction activities to accommodate the installation of the work at various locations and orderly fashion and the completion of work at various locations and/or levels at various times. This "phasing", "out of sequence", or "come back" work shall be done at no cost to other contractors, the Owner, Architect or the Construction Manager.

B. The Contractor warrants to the Owner that (1) the materials and equipment furnished under its contract will be of good quality and new, and of recent manufacture, unless otherwise required or permitted by the Contract Documents, (2) that its work will be free from defects not inherent in the quality required or permitted, and (3) that its work will conform with the terms and conditions of its agreement with the Owner. Work not conforming to these requirements,



including substitutions not properly approved and authorized, shall be considered defective and shall be removed and replaced at the Contractor's cost and expense. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

C. Except as to any reported errors, inconsistencies or omissions, and to concealed or unknown conditions, by executing the Agreement, the Contractor represents the following:

1. The drawings and accompanying specifications found in the project manual issued simultaneously with said drawings are sufficiently complete and detailed for the Contractor to (a) perform the work required to produce the results intended by the Owner and (b) comply with all the requirements of its contract with the Owner.

2. The work required to be performed by the Contractor including, without limitation, all construction details, construction means, methods, procedures and techniques necessary to perform its work, use of materials, selection of equipment and requirements of product manufacturers are consistent with: (a) good and prevailing and accepted industry standards applicable to its work; (b) requirements of any warranties applicable to its work; and (c) all laws, ordinances, regulations, rules and orders which bear upon the Contractor's performance of its work.

3. The Drawings and Specifications for the Contract have been prepared with care and are intended to show as clearly as is practicable the work required to be done. Work under all items in the Contract must be carried out to meet field conditions to the satisfaction of the Architect and Owner and in accordance with his instructions and the Contract Drawings and Specifications.

4. All dimensions shown on the Drawings are for bidding purposes only. It is the responsibility of the Contractor to verify all dimensions in the field to insure proper and accurate fit of materials and items to be installed.

D. The representations set forth herein shall survive expiration and/or termination of the Contractor's agreement with the Owner.

### **ARTICLE 3 CONTRACTOR'S CONSTRUCTION PROCEDURES**

A. 1. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures required for the proper execution of its work on the project. Where the drawings and/or project manual make reference to particular construction means, methods, techniques, sequences or procedures or indicate or imply that such are to be used in connection with the Contractor's work, such reference is intended only to indicate that the Contractor's work is to produce at least the quality of the work implied by the operations described, but the actual determination as to whether or not the described operations may be safely or suitably employed in the performance of the Contractor's work shall be the sole



responsibility of the Contractor. All loss, damage, liability, or cost of correcting defective work arising from the employment of a specific construction means, method, technique, sequence or procedure shall be borne solely by the Contractor.

2. Neither the Architect, the Construction Manager or the Owner will have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided herein.

3. The Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, rigging, water, heat, utilities, light, transportation, and other facilities and services necessary for proper execution and completion of its work, whether temporary or permanent and whether or not incorporated or to be incorporated in its work.

B. The Contractor shall be responsible for coordinating the work of its own forces and the work of subcontractors engaged by it to perform the work of the project on its behalf. The Contractor shall supply to its own work forces, and subcontractors engaged by it to perform portions of its work, copies of the drawings and project manuals for the work to be performed by such individuals/entities on its behalf. The Contractor shall review any specified or installation procedure with its employees and/or subcontractors, including those recommended by any product manufacturer, prior to the commencement of the relevant portion of the work to be performed. The Contractor shall be responsible to the Owner for the acts and/or omissions of the Contractor's employees, the Contractor's Subcontractors, the Contractor's material suppliers, and/or their respective agents and employees, and any other persons performing portions of the work on behalf of the Contractor.

C. The Contractor shall be responsible for the inspection of portions of the project performed by its own work force and/or subcontractors engaged by it for the purpose of determining that said work is in proper condition to receive subsequent work.

D. The Contractor shall perform its work in accordance with the standards of the construction industry applicable to work in the locale in which work is to be performed.

E. The Contractor shall only employ 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 capital improvement 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 its portion of the 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.



F. 1. If the Contractor has engaged the services of workers and/or subcontractors who are members of trade unions, the Contractor shall make all necessary arrangements to reconcile, without delay, damage or cost to the Owner and without recourse to the Architect, the Construction Manager or the Owner, any conflict between its agreement with the Owner and any agreements or regulations of any kind at any time in force among members or councils which regulate or distinguish what activities shall not be included in the work of any particular trade.

2. In case the progress of the capital improvement work to be performed by the Contractor is effected by any undue delay in furnishing or installing any items or materials or equipment required pursuant to its agreement with the Owner because of a conflict involving any such labor agreement or regulation, the Owner may require that other material or equipment of equal kind and quality be provided pursuant to a Change Order or Construction Change Directive but in no case shall the amount of such change be charged by the Contractor to the Owner as an additional cost to perform the capital improvement work pursuant to its contract.

3. The Contractor shall ensure that its work continues uninterrupted during the pendency of a labor dispute.

4. 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.

G. The Contractor shall enforce strict discipline and good order among the Contractor's employees and its Subcontractors' work forces and other persons carrying out the performance of its work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. The Owner reserves the right to object to any person to be hired or who is employed by the Contractor. Upon the request of the Owner, said person shall be removed from the Project and not again be assigned to perform the Contractor's work without the written permission of the Owner.

H. Within one (1) week after a Notice to Proceed is received, the Contractor shall employ a competent, full-time Project Manager and On Site Superintendent to be approved by the Owner or its representative, and such necessary assistants who shall be in attendance at each project site whenever and wherever work is in progress to provide for the expeditious completion of the work. Said Project Manager and On Site Superintendent shall be employed until punchlist and closeout of the Project. To the extent work is being performed contemporaneously at different facilities within the School District, the Contractor shall assign different superintendents for each facility at which work is being performed. The Project Manager and On Site Superintendent assigned by the Contractor shall not be changed except with the consent of Owner, unless the Project Manager or On Site superintendent or such assistant proves to be unsatisfactory to the Contractor and/or ceases to be in its employ. The Project Manager and On Site Superintendent shall represent the Contractor, and communications given to the Project Manager or On Site Superintendent, whether verbal or written, shall be as binding as if given to the Contractor. Oral communications to the superintendent(s) or his/her assistant(s) and/or project manager shall be confirmed in writing by the Owner or Architect. The Contractor shall forward to the Owner a copy of the resumes for each of its superintendents, project managers and their assistants. The



Owner, the Construction Manager or the Architect shall have the right to have any supervisory or management staff removed from the project with or without cause.

I. Each Contractor shall provide, or otherwise see that, the project manager, or on site superintendent site managers, and/or responsible workers of each Contractor and major subcontractor are equipped with cellular phones and radios. Each Contractor shall provide the Owner, the Construction Manager and the Architect with the number for each phone and worker.

J. The Contractor's supervisory personnel, including superintendents and their assistants, shall be versed in the English language. In the event the Contractor's supervisory personnel, superintendents and/or their assistants are not versed in the English language, the Contractor shall employ the services of a full-time on-site interpreter to facilitate communications with such supervisory personnel, superintendents and/or assistants.

K. Prior to the commencement of work, the Contractor shall provide the Construction Manager and the Architect with:

1. a written list of the names, addresses and telephone numbers of the members of its organization who can be contacted in the event of an off-hours emergency at the building site, including cellular telephone numbers and personal/home telephone numbers.
2. a written list of subcontractors, sub-subcontractors, suppliers and vendors with names, addresses, telephone numbers, and descriptions of the work they shall perform or furnish.
3. The name, address and telephone number of the bonding company, banking and insurance company for the Prime Contractor employed by the Prime Contractor including the name, address and telephone number of each bonding company's primary contact representative for this project.
4. Detailed subcontractor schedules indicating the approximate quantity of shop drawings, sequence, timing and man loading.
5. A cash flow projection for the life of the project, including a schedule and graph showing the amount of work projected to be completed each month or billing period and a dollar value for the anticipated billings each month or billing period. This shall be completed after an agreed upon schedule of values has been approved by the Construction Manager.

L. 1. Tests, inspections and approvals of portions of the Contractor's work required by the drawings and/or specifications shall be made at an appropriate time. Unless otherwise provided, the Contractor shall consult with the Architect and the Construction Manager concerning the need for testing and/or inspection of its work pursuant to the Contract Documents and, after consulting with the Architect and Construction Manager, the Construction



Manager shall advise the Owner to 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. The Owner shall bear all costs associated with the tests, inspections or approvals required by the drawings and/or specifications except as set forth in subparagraph 3 hereof.

2. Tests, inspections and approval of portions of the Contractor's work required by laws, ordinances, rules, regulations or orders of public authorities or governmental agency having jurisdiction shall be made at an appropriate time. The Contractor shall consult with the Architect and the Construction Manager concerning the need for testing and/or inspection of its work pursuant to law, ordinance, regulation or orders of public authorities or governmental agencies and shall advise the Owner in writing that it has made arrangements for such tests, inspections and approvals with the appropriate public authority or governmental agency. The Contractor shall be solely responsible for making timely notice of the need for a test, inspection and/or approval with the relevant public authority or governmental agencies and shall bear all costs associated with such testing, inspection or approval required by such public authority or governmental agency.

3. If the Architect, the Construction Manager, the Owner, or public authorities or governmental agencies having jurisdiction determine that portions of the Contractor's work require additional testing, inspection or approval due to the Contractor's failure to perform its work in accordance with the requirements of the Contract Documents and/or laws, ordinances, rules, regulations or orders of public authorities or governmental agencies having jurisdiction, the Architect and the Construction Manager will advise the Owner of the need for such additional inspections or tests and the Owner shall make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner. The Contractor shall bear the costs of such additional testing as provided in Article 14.

M. The Contractor shall, if required by ordinances, laws, codes, rules and/or regulations of the governing agencies having jurisdiction over this project, retain a licensed professional engineer to supervise the construction of this project including, but not limited to, foundations, structural work, soils, welding, reinforced masonry and the like.

N. The Contractor recognizes and acknowledges that the within project is governed by and subject to the provisions of New York State General Municipal Law, section 101, governing the award of contracts on public improvement projects. As such, the Contractor recognizes and acknowledges that other contractors will be performing work on the project in conjunction with it. As such the Contractor agrees to cooperate with such other contractors performing work on the project and shall perform its work as follows:

1. The Contractor shall not interfere with the erection, installation or storage upon the premises of any work, materials, supplies or equipment which is to be performed and furnished by other contractors, and the Contractor shall properly connect and coordinate its work therewith.



2. The Contractor shall not commit or permit any act which will interfere with the performance of the work of any other contractor performing work on the project. If the Contractor sustains any damage through any act or omission of other contractors having a contract with the Owner for the performance of work upon the site or of work which may be necessary to be performed for the proper execution of the work to be performed hereunder, or through any act or omission of a subcontractor of such contractor, the Contractor shall promptly notify the Owner and the Construction Manager of such damage.

3. The Contractor agrees to defend and indemnify Owner, Architect, Construction Manager, its Consultants and Sub-consultants, from all claims made against any of them arising out of Contractor's acts or omissions or the acts or omissions of any subcontractor of the Contractor which have caused damage to the Owner, Architect, Construction Manager or other contractor(s) on the project. The Owner's right to indemnification hereunder shall in no way be diminished, waived or discharged, or by the exercise of any other remedy provided for by the contract or by law. Further, the Owner shall withhold from an offending contractor's contract sum an amount sufficient to cover such damage and all expenses and costs associated with the damage sustained.

4. When the work of the Contractor or its subcontractors overlap or dovetail with that of other Contractors, materials shall be delivered and operations conducted to carry on the work continuously, in an efficient, workmanlike manner.

5. In case of interference between the operations of different Contractors, the Construction Manager will be the sole judge of the rights of each Contractor and shall have the authority to decide in what manner the work may proceed, and in all cases its decision shall be final. Any decision as to the method and times of conducting the work or the use of space as required in this paragraph shall not be basis of any claim for delay or damages by the Contractor.

6. The Contractor, including its subcontractors, shall keep itself informed of the progress of other contractors and shall notify the Architect or the Construction Manager immediately in writing of lack of progress on the part of other contractors where such delay will interfere with its own operations. Failure of the Contractor to keep informed of the work progressing on the project and failure to give notice of lack of progress by others shall be construed as acceptance by the Contractor of the status of the work as being satisfactory for proper coordination with the Contractor's own work.

7. Delays or oversights on the part of any contractor or subcontractor in getting any or all of their work done in the proper way, thereby causing cutting, removing and replacing work already in place, shall not be the basis for a claim for extra compensation.

8. If part of the Contractor's work depends for proper execution or results upon construction or operations by the Owner or another contractor, the Contractor shall, prior to proceeding with that portion of its work, promptly report to the Architect and Construction Manager apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall



constitute an acknowledgment that the Owner's or other contractor's completed or partially completed construction is fit and proper to receive the Contractor's work.

9. The Contractor shall promptly correct discrepancies or defects in its work which have been identified by other contractors as affecting proper execution and results of the work of such other Contractor.

O. 1. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities or governmental agencies bearing on performance of the Work. If the Contractor fails to give such notices, it shall be liable for and shall indemnify and hold harmless (a) the Owner, its consultants, employees, officers and agents, (b) the Architect and its consultants, employees, officers and agents, and/or (c) the Construction Manager and its consultants, employees, officers and agents against any resulting fines, penalties, judgments, or damages, including reasonable attorney's fees, imposed on or incurred by the parties indemnified hereunder.

2. The Contractor shall pay any costs or fees incurred in such compliance and any fines or penalties imposed for violation thereof and any costs or fees incurred by the Owner due to such violation. If the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate modification to the drawings and/or specifications.

3. If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect, the Construction Manager and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs and shall bear the total cost for correction of same.

4. If the Contractor fails to give such notices, it shall be liable for and shall indemnify and hold harmless (1) the Owner, its consultants, employees, officers and agents, (2) the Architect and its consultants, employees, officers and agents, and (3) the Construction Manager, its consultants, employees, officers and agents, against any resulting fines, penalties, judgments, or damages, including reasonable attorney's fees, imposed on or incurred by the parties indemnified hereunder. The Contractor shall pay any costs or fees incurred in such compliance and any fines or penalties imposed for violation thereof and any costs or fees incurred by the Owner due to such violation.

P. The Contractor recognizes and acknowledges that job meetings will be held at the job site weekly unless otherwise designated by the Owner or the Architect. The Contractor shall have responsible representation at the MANDATORY weekly job meetings held at the Construction Manager's job office. These meetings will be held to arrange for satisfactory coordination of all trades on the project so as not to impede job progress. Contractors or subcontractors failing to attend job meetings shall be responsible for delays and/or expenses incurred due to coordination difficulty.



Q. The Contractor shall provide copies of its daily construction reports to the Construction Manager's Field Superintendent. These reports shall be submitted no later than 10:00 am the following workday. The daily reports shall provide detailed information concerning the Contractor's activities and operations, including work activities on site and manpower. A "Daily Construction" form is included in these specifications and shall be used for reporting these activities. In addition, the Contractors are to submit a Two Week Look Ahead schedule for up coming work. A "Two Week Look Ahead" form is included in these specifications for the Contractor's use.

#### ARTICLE 4 CONTRACTOR'S USE OF SITE

A. The Contractor shall confine operations at the site to the areas at which construction is to be performed and to such areas permitted by law, ordinances, permits and as set forth in detail in the project manual and drawings forming a part of its contract with the Owner.

B. Five (5) days after receipt of the Notice to Proceed, the Contractor shall provide two (2) copies of a video taped recording of all existing conditions to the Construction Manager. This taping shall provide a record of all existing buildings, grounds, exterior conditions and interior conditions. The Contractor shall schedule a representative of both the Owner and the Construction Manager to be present at this taping. In the absence of this record, the Contractor shall be responsible for paying the costs associated with any and all repairs in an area where the Contractor is working or has worked, as may be deemed necessary by the Owner or the Construction Manager.

C. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy.

D. General Safety and Security Standards for Construction Projects:

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. The Contractor shall exert utmost care and diligence when working in or near any existing buildings or sitework. The absence of protection around such items shall not excuse the Contractor from its liability to provide protection. Any damage to existing buildings, sitework or facilities shall be repaired and charged to the Contractor responsible for the damage.



6. The Contractor shall be responsible for the removal and replacement of existing ceiling tiles and grid in areas of the existing building where its work is required and new ceilings are not scheduled for installation. In the event that the existing ceilings are damaged and cannot be replaced to the satisfaction of the Owner, the responsible contractor shall be liable for the costs of replacing in kind, the existing ceilings with new tile and grid.

7. All disconnect and/or tie-in work involving any utilities that would interfere with the ongoing operations of the Owner shall be completed after hours when the facility is not in use. The performance of this work shall be projected on all schedules required to be prepared by the Contractor. Additionally, the Contractor shall give the Construction Manager and the Owner at least forty-eight (48) hours advance notice of its intention to perform this type of work. All overtime and standby personnel necessary to complete these tie-ins shall be the responsibility of the Contractor performing the work.

E. 1. Separation of construction areas from occupied spaces: 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. Methods of dust and fume control shall include, but not be limited to:

- a. Adequate ventilation;
- b. Wetting down;
- c. Keeping bags of insulating materials, cement, etc., closed.
- d. Controlled mixing of materials under field conditions;
- e. Special attention should be utilized in sawing of insulation and certain acoustical materials and storage of materials.
- f. Job housekeeping must be maintained;
- g. Advising all personnel of hazardous conditions, including supervisors and workers;

Each contractor is responsible for instituting the above policies to insure minimal impact to surrounding occupied areas.



2. 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.

3. 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.

4. 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.

F. 1. Storage space will be allotted to the Contractor by the Owner to the extent such space, in the sole discretion of the Owner, is available. The Contractor shall be responsible for securing appropriate space for its material with the Construction Manager prior to delivery. If insufficient space is available on the site, the Contractor shall provide local off-site storage, storage containers, etc. at its own cost and expense. Should any of the material stored on-site obstruct the progress of any portion of the work or the project, this material shall be removed by the Contractor without reimbursement of cost, from place to place or from the premises, as the Construction Manager may direct.

2. The Contractor shall schedule delivery of materials and equipment to minimize long term storage at the Project, to prevent overcrowding of construction spaces, and to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

3. The Contractor shall deliver materials and equipment to the Project 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 installation. The Contractor shall inspect materials and equipment upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected. The Contractor shall store products to allow for inspection and measurement of quantity or counting of units. The Contractor shall store materials in a manner that will not endanger the Project structure. The Contractor shall store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation. The Contractor shall comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

4. The Contractor shall not unreasonably encumber the site with materials or equipment during the performance of its work. Only materials and equipment which are to be used directly in the performance of the Contractor's work shall be brought to and stored on the premises of the School District. After equipment is no longer required for its work, the Contractor shall promptly remove such equipment from the premises of the School District. The Contractor



shall be solely responsible for the protection of construction materials and equipment stored on the premises from weather, theft, damage and all other adversity. The Contractor shall at all times provide the proper housekeeping to minimize potential fire hazards, and shall provide approved spark arresters on all steam engines, internal combustion engines and flues.

5. A construction entrance will be designated for deliveries. A separate entrance will be established for entering and exiting the site only. All deliveries shall be scheduled and coordinated with the Construction Manager and the Owner's Security department. Unexpected or uncoordinated deliveries may be turned away by the Owner or the Construction Manager at the discretion or necessity of the Owner. The Owner's enforcement of this provision shall not be construed by any contractor or subcontractor as the basis for a claim of delay in time or monetary damages alleged to have been incurred as a result of refusal of delivery.

6. The Contractor for General Construction shall provide necessary and required security measures to adequately safeguard the construction site from vandalism and intrusion of unauthorized persons. The Contractor for General Construction shall submit its means and methods of security to the Construction Manager for review and comment. The project site(s) must be secured 24 hours a day, 7 days a week including holidays. The General Construction Contractor's failure to secure the site as required by this paragraph will result in the Owner engaging the services of such necessary personnel so as to provide such security. No notice will be given the Contractor for General Construction of the Owner's intention to engage such security services and all costs and expenses associated with the Owner's security of the site in this regard will be back charged to the Contractor for General Construction. While the Owner may have security guards patrolling the project areas, the function of such security guards is not for the purpose of specifically guarding the Contractor's property or operations of work.

G. The Contractor's right to entry and use of the School District premises arises solely from the permission granted by the Owner pursuant to the agreement between the Contractor and the Owner. This permission shall be deemed to be withdrawn upon the termination of the Contractor's agreement with the Owner.

H. 1. The Contractor shall be required to perform its work with no interruption to the School District's operations, including its administrative and business operations. Any work which will interfere with the School District's operations and/or which is to be performed when the School District's facilities are in operation shall be performed on evenings and weekends. Additionally, the Contractor shall conduct its work in compliance with federal, state, county or local ordinances. All costs incurred by the Owner to make the facilities available during evening and weekends shall be borne by the Contractor. The Owner reserves the right to determine what work will "interfere" with its operations and said determination shall be final.

2. The Contractor may request access to the site during times beyond the work hours permitted. Approval is solely at the discretion of the Owner. If approval is given, the Contractor is responsible for paying all additional costs incurred by the Owner, Architect and the Construction Manager for providing the site to the Contractor during the additional time periods.



3. In the event the Contractor fails to complete all work under this contract by said scheduled dates, the Contractor will not be permitted to perform any work during normal school hours. Such work shall only be performed after school hours, Saturdays, Sundays, holidays or periods when school is unoccupied at no additional cost of any kind to the Owner. In addition to damages incurred by the Owner in connection with the Contractor's delay, the Contractor shall be liable for all costs incurred by the Owner to provide staff, Architect and Construction Manager personnel as required to make facility accessible by Contractor and perform inspections during such off hours.

4. The Owner shall not be responsible for any overtime charges incurred by the Contractor during the course of this project. Any and all costs associated with work which is performed at hours requiring the payment of such overtime by the Contractor to its workers shall be the Contractor's responsibility.

I. 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.

J. The Contractor shall provide all required temporary access walkways, both interior and exterior, and the like necessary to complete its work. The Contractor shall maintain an unobstructed condition at all entrances and/or exits from present buildings. No equipment, other than equipment with rubber tires, will be allowed on any existing or new pavement, UNLESS THE CONTRACTOR HAS OBTAINED THE PRIOR APPROVAL OF THE CONSTRUCTION MANAGER AND THE PAVEMENT HAS BEEN FIRST PROTECTED WITH PLANKING OR BY OTHER MEANS APPROVED BY THE CONSTRUCTION MANAGER.

K. The Contractor and any entity for whom the Contractor is responsible shall not erect any sign on the premises of the School District without the prior written consent of the Owner, which consent may be withheld at the sole discretion of the Owner.

L. 1. Without the prior approval of the Owner, the Contractor shall not permit any workers to use any existing School District facilities, including, without limitation, lavatories, toilets, entrances and parking areas other than those designated by the Owner. Employees, vehicles, and equipment of the Contractor and of all others engaged by the Contractor for the performance of its work shall enter onto the premises of the School District for which construction work is to be performed only at those locations designated or approved by the Construction Manager. The parking for construction personnel shall be limited to the designated trailer park area only. Failure to abide by this rule will result in towing of cars at the expense of the contractor who employs the individual.

2. The Contractor shall ensure that its work, at all times, is performed in a manner that affords reasonable access to both vehicles and individuals, to the premises of the School District and all adjacent areas. The Contractors' work shall be performed, to the fullest extent possible, in such a manner that areas in and around the construction area shall be free from all debris, building materials and equipment likely to cause hazardous conditions, and do not close



or obstruct walkways, roadways or other occupied facilities or facilities to be used by the Owner. Without limitation to any other provision of the agreement between the Contractor and the Owner, the Contractor shall use its best efforts to minimize any interference with the occupancy of areas, buildings, entrances, and parking areas in and around the premises at which work is being performed. Free access to fire hydrants and standpipe connections shall be maintained at all times during construction operations, and portable fire extinguishers shall be provided by the Contractor and made conveniently available throughout the construction site.

3. The Construction Manager, in conjunction with the Owner and the Architect, shall designate locations at the site at which the Contractor, its subcontractors and employees may utilize in connection with its work. The Contractor's employees and the employees of the Contractor's Subcontractors and others engaged by the Contractor to perform its work are prohibited from trespassing or leaving any vehicle on any property not assigned by the Owner as set aside for the use of the Contractor. The Contractor's employees and the employees of the Contractor's Subcontractors and other engaged by the Contractor to perform its work are restricted to the immediate area at which work is to be performed. Only persons having official business will be admitted to the construction site. NO COMMUNICATION BETWEEN THE CONTRACTOR, ITS EMPLOYEES, SUBCONTRACTORS' EMPLOYEES, OR OTHERS ENGAGED BY THE CONTRACTOR FOR THE PERFORMANCE OF ITS WORK AND STUDENTS OR STAFF WILL BE PERMITTED.

4. The Contractor, its employees, its Subcontractors and their employees or agents, and all others engaged by the Contractor in connection with the performance of its work are required to wear photographic identification badges at all times. The Contractor shall provide such individuals with said photographic identification badges. These badges shall be worn so as to be readily and easily visible. All workers and representatives of the Contractor, its subcontractors or suppliers shall wear these badges while on school property. The information on these badges shall be as prescribed by the Owner and the Construction Manager. Each person seen without a photo identification badge (or otherwise failing to comply with this requirement in the opinion of the Owner or the Construction Manager) shall be ordered to leave school property. No warnings shall be necessary. The Contractor(s) and their subcontractor(s) employing the offending person(s) shall be solely responsible for making-up and paying for any loss of production or required progress in the Work resulting from this action (including any claims by other Contractors dependent on the work of this Contractor). All parties agree that any action taken to enforce this requirement shall not be construed by any Contractor or its subcontractors or suppliers as the basis for a claim (for either time or money) for delay to the Work or to the Contractor, its Subcontractors, or Suppliers.

5. Without limitation of any other provision of the agreement between the Owner and Contractor, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the premises of the School District. The Contractor shall immediately notify the Owner in writing if during the performance of its 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 alternative through which the same results intended by such portion 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.

M. No drinking of alcoholic beverages, smoking or use of controlled substances is permitted on the grounds. The Contractor shall insure that none of its or its Subcontractors, its employees, agents, and/or consultants report to the site impaired by alcohol or controlled substances. The Contractor bears the responsibility of determining if its, or its subcontractors, employees are in any way impaired and whether the safety of the public, the employees of other Contractors and their Subcontractors, the Owner, Architect, or Construction Manager are jeopardized. Each contractor shall provide drinking water for its own employees.

N. The Contractor's employees, representatives, agents and consultants, and all of its Subcontractors' employees, representatives, agents and consultants at the site are to refrain from using indecent language. All doing so will be removed from the site. Artwork or decoration found on vehicles belonging to Contractor or Subcontractor employees parked on or near the school property which contain indecent language or pictures shall either be covered or removed from the location.

O. The Contractor's employees, representative, agents and consultants, and all of its Subcontractors' employees, representatives, agents and consultants at the site are to wear shirts, long pants and proper footwear.

P. Each contractor shall keep the premises and surrounding area in which it is working free from accumulation of waste materials or rubbish caused by the performance of all of the work being performed on-site and in the buildings. On a daily basis at the conclusion of work on the project, each contractor shall clean the areas in which it has performed work and shall remove all waste, materials, rubbish, its tools, construction equipment, machinery and surplus materials. Each Contractor shall broom sweep all construction areas in which it has performed worked every day. The Construction Manager shall perform an inspection each afternoon to determine that the work areas of the contractors have been properly cleaned. In the event the work areas are not cleaned, the Construction Manager shall advise the offending contractor to provide cleaning as required herein. If any contractor fails to keep the site safe and clean within four (4) hours of being notified by the Construction Manager, either verbally or in writing, the Construction Manager will have the clean up work performed and back charged to the offending contractor without further notification to the Contractor. The cost of such cleaning company, together with the cost of any custodial costs of the School District, at prevailing overtime rates plus 15% will be charged to the offending contractor. Notice to field personnel shall be deemed notice to the Contractor.

Q. The Contractor shall provide ventilation of enclosed areas during construction as may be required to permit proper curing and drying out and to prevent excessive humidity, moisture and condensation. Ventilation shall be by natural or artificial means as required by conditions involved.



R. The Contractor shall be responsible for the control of chemical fumes, gases and other contaminants produced by welding, gasoline or diesel engines, roofing, paving, painting, etc. to ensure that they do not enter occupied portions of the building or air intakes.

S. The Contractor shall be responsible for ensuring 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.

T. From the commencement to the completion of the Project, the Contractor shall keep the parts of the work and the buildings free from accumulation of water no matter what the source or cause of water.

U. 1. The General Contractor shall construct temporary partitions where shown on drawings or where otherwise required for safety of the public or to prevent dust from entering occupied areas. Partitions shall be dust-proof from floor to slab or structure above (if existing condition is a drop in tile ceiling, Contractor shall remove tile and install partition to structure above). In addition to framing and sheetrock, the Contractor shall install fire resistant plastic partitions on the work area side of its work. If an access door is required, an alternating 3 layer plastic system shall be used. The door shall be a standard hollow metal door with lockset and closer. Keys shall be distributed to the Owner's other contractors, the Owner and the Architect.

2. All cutting and welding performed within an occupied building or adjacent to a window or intake vent shall be performed during off hours.

V. 1. The Contractor shall control the safe handling and storage of all welding materials, acetylene and oxygen tanks, and other equipment required for welding and cutting work at the job site. Such storage shall be in compliance with OSHA regulations.

2. Welding materials and equipment shall be removed promptly from the premises upon completion of the welding and cutting work.

W. The Contractor shall be responsible for all costs incurred by the Owner caused by false security/fire alarms set off by the Contractor. Costs shall include custodial response charges etc.

X. The Contractor shall be responsible for broken glass, and at the completion of the Work shall replace such damaged or broken glass. After damaged or broken glass has been replaced, the Contractor shall remove all labels, wash and polish both sides of all glass. In addition to general broom cleaning, the General Contractor shall perform the following final cleaning for all trades at completion of the Work:

1. Remove temporary protections;
2. Remove marks, stains, fingerprints and other soil or dirt from painted, decorated and natural finished woodwork and other Work;



3. Remove spots, plaster, soil and paint from ceramic tile, marble and other finished materials, and wash or wipe clean;
4. Clean fixtures, cabinet work and equipment, removing stains, paint, dirt and dust, and leave same in undamaged, new condition;
5. Clean aluminum in accordance with recommendations of the manufacturer; and
6. Clean all floors thoroughly in accordance with recommendations of the manufacturer.

Y. Where a contractor other than the General Contractor is the only contractor engaged to perform work, the responsibilities allocated to the General Contractor in these General Conditions shall be performed by such other contractor.

## **ARTICLE 5 SUBCONTRACTORS**

A. 1. As soon as practicable after receipt of Letter of Intent to Award, Notice to Proceed or other form of official notice of award of the Contract, but not more than ten (10) days after receipt of official notice of award of the Contract, the Contractor shall furnish the Owner and the Architect, in writing, with (1) the name, trade and subcontract amount for each Subcontractor and (2) the names of all persons or entities proposed as manufacturers of the products identified in the Specifications (including those who are to furnish materials or equipment fabricated to a special design) and, where applicable, the name of the installing Subcontractor. Copies of all Subcontractor contracts, fully executed, are to be provided to the Construction Manager, including but not limited to all addenda, appendices, and/or exhibits including scope of work sheets. All such subcontracts shall be submitted to the Construction Manager within ten (10) days of the Owner's award of the contract to the Contractor.

2. Upon review of the Contractor's list of Subcontractors, the Architect will advise the Contractor in writing stating whether or not the Owner, the Construction Manager or the Architect, after due investigation, accepts or rejects, any proposed Subcontractor. Subcontractors will not be acceptable unless, when requested by the Architect, evidence is furnished that the proposed subcontractor has satisfactorily completed similar subcontracts as contemplated under this prime contract, and has the necessary experience, personnel, equipment, plant, and financial ability to complete the subcontract in accordance with the intent to the Documents. As verification of financial ability, the Owner reserves the right to request and receive up to five (5) years worth of financial statements, bank references, bond/insurance company references and all other information required to assess financial ability.

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 and Architect have no objection. No increase in the Contract Sum shall be allowed where a sub-contractor is rejected by the Architect, Construction Manager or Owner who is (1) deemed unqualified to perform the particular work subcontracted by the Contractor, (2) does not have the necessary experience, personnel, equipment, plant and financial ability to complete the subcontract, or (3) has a history of poor performance in work of similar



nature. Upon receipt of a rejection of a subcontractor by the Architect, the Contractor shall have the right to request a meeting with the Architect, Construction Manager and the Owner to discuss the reasons it believes the subcontractor is qualified to perform the work. Upon review of such reasons, the Architect shall re-consider its determination and shall advise the Contractor of its determination upon such review. If the Architect still finds that such subcontractor does not meet the requirements above-stated, it shall advise the Contractor. The Architect's determination upon such review shall be final and binding on the Contractor and its Subcontractor and the Contractor hereby waives any and all claims it or its subcontractor might have against the Owner, the Construction Manager and/or the Architect concerning the rejection of such Contractor and shall require its subcontractors to execute such similar waiver in its agreement with the Contractor.

4. The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such change.

B. By appropriate agreement, the Contractor shall require each Subcontractor to be bound to the Contractor by terms of the Contractor's agreement with the Owner, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by said agreement, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contractor's agreement with the Owner so that subcontracting thereof will not prejudice such rights, and shall allow 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 its agreement with the Owner, has against the Owner. However, the Subcontract agreement between the Contractor and Subcontractor shall not provide, nor shall this Agreement be deemed to provide any rights, remedies or redress by the Subcontractor(s) against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors.

C. The Contractor shall promptly notify the Owner, Construction Manager and Architect of any material defaults by any Subcontractors and/or whether it has terminated its agreement with any of its subcontractors for any reason.

D. The Contractor hereby assigns all of its rights in its agreements with its Subcontractor(s) and hereby does assign, transfer and set over to the Owner all of its rights and/or interests in its agreements with its Subcontractor(s), but only in the event of termination of the Contractor's agreement with the Owner pursuant to Article 17, paragraph A of these General Conditions of the Contract for Construction and only to the extent the Owner implements its rights to take such assignment of contract by notifying the Subcontractor in writing of its intention to do so. Such an assignment is subject to the prior rights of the surety, if any, obligated to the Owner pursuant to a performance bond submitted in connection with the Contractor's work.

E. If the Work in connection with a subcontract has been suspended for more than ninety (90) days after termination of the Contract by the Owner and the Owner accepts assignment of



such subcontract, the Subcontractor's compensation shall not be adjusted for any increase in direct costs incurred by such Subcontractor as a result of the suspension.

F. It shall be the Contractor's responsibility, when sub-contracting any portion of his work, to arrange or group items of work under particular trades to conform with then prevailing customs of the trade, regardless of the particular Divisions and Sections of the Specifications in which the work is described.

G. All subcontracts must be in writing.

## ARTICLE 6 CONTRACTOR'S USE OF DRAWINGS/SPECIFICATIONS

A. The Agreement between the Owner and Contractor, and all documents incorporated therein by reference, including but not limited to, the drawings and project manual shall be signed by the Contractor and the Owner.

B. The intent of the agreement between the Owner and the Contractor is to include all items necessary for the proper execution and completion of the work to be performed by the Contractor. The documents comprising the agreement between the Contractor and the Owner are complementary, and what is required by one shall be as binding as if required by all.

C. 1. In the event of inconsistencies within or between parts of the agreement between the Contractor and the Owner or between the agreement between the Contractor and the Owner and applicable standards, codes and ordinances, the Contractor shall (a) provide the better quality or greater quantity of Work or (b) comply with the more stringent requirement; either or both in accordance with the Architect's interpretation.

2. On the Drawings, given dimensions shall take precedence over scaled measurements and large scale drawings over small scale drawings.

3. Before ordering any materials or performing any of its work, the Contractor and each Subcontractor shall verify measurements at the Project site and shall be responsible for the correctness of such measurements. No extra charge or compensation will be allowed on account of differences between actual dimensions and the dimensions indicated on the Drawings. Any difference which may be found shall be submitted to the Architect for resolution before proceeding with the performance of the work.

4. If a minor change in the Work is found necessary due to actual field conditions, the Contractor shall submit detailed drawings of such departure for the approval by the Architect before making the change.

5. Drawings, in general, are made to scale, but all working dimensions shall be taken from the figured dimensions or by actual measurements at the job and in no case by scaling. The Contractor shall study and compare all Drawings and verify all figures before laying out or



constructing the work and shall be responsible for any and all errors in his work which might have been avoided thereby. Whether or not an error is believed to exist, deviation from the Drawings and the dimensions given thereon shall be made only after approval in writing is obtained from the Architect.

6. In the event addendum (a) are issued and contain changes to the Drawings and/or Specifications, the provisions in the addendum (a) supersede previously issued Drawings and/or Specifications.

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

E. Unless otherwise stated in the agreement, words and abbreviations which have well-known technical or construction industry meanings are used in the agreements in accordance with such recognized meanings.

F. The Contractor, and all Subcontractors, shall refer to all of the Drawings, including those showing the work of others performing work in connection with the project, including but not limited to the General Contractor (if any), the Plumbing Contractor, the Heating, Ventilation, Air Conditioning Contractor, Electrical Contractor and other specialized trades, and to all of the Divisions of the Project Manual, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results.

G. All indications or notations on the drawings which apply to one of a number of similar situations, materials or processes shall be deemed to apply to all such situations, materials or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the drawings or project manual. All work mentioned or indicated in the drawings or project manual shall be performed by the Contractor unless it is specifically indicated therein that the work is to be performed by others.

H. The Drawings, Specifications and other documents prepared by the Architect are instruments of the Architect's service through which the Contractor's work is to be performed. The Contractor may retain one contract record set during the course of the project. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect, and unless otherwise indicated the Architect shall be deemed the author of them and will retain all common law, statutory and other reserved rights, in addition to the copyright. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work.

I. The Drawings, Specifications and other documents prepared by the Architect, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects without the specific written consent of the Owner and Architect. The



Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect appropriate to and for use in the performance of its work pursuant to its agreement with the Owner. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's copyright or other reserved rights.

J. The Owner shall furnish surveys describing physical characteristics of the site, upon written request of the Contractor and to the extent such survey is in existence at the time of said request, legal limitations and utility locations for the project sites. Nothing herein shall be construed as requiring the Owner to generate any document which it does not possess at the time of the request by the Contractor. In the event that the survey provided does not clearly delineate the metes and bounds of the Owner's property, the Contractor shall stop work and immediately notify the Architect, Construction Manager and the Owner. The Contractor shall NOT proceed with its work until it receives written permission from the Construction Manager and/or the Architect. The Contractor shall be fully responsible for all costs arising from non-compliance with this provision. Any delays associated with this provision shall not serve as a basis for a claim by the Contractor.

K. From the basic data established by the Owner, the General Contractor shall establish reference control points and complete the layout of the work. Each Contractor is responsible for utility markouts as it pertains to the scope of their work and maintain markout during work. Sketch of layout with reference points to be given to Construction Manager and Architect at the time of markout.

L. The Contractor shall be responsible for all measurements that may be required for execution of the work to the exact position and elevation as prescribed in the specifications, shown on the drawings, or as the same may be modified at the direction of the Architect to meet changed conditions.

M. The General Contractor shall be responsible for the establishment of points, wall and partition lines required by the various Prime Contractors and subcontractors in laying out their work.

N. Each Contractor shall furnish such stakes and other required equipment, tools and materials, and all labor as may be required in laying out any part of the work from the base lines and benchmarks established by the Owner.

O. 1. The General Construction Contractor shall establish a baseline and benchmark system for each building addition, area of renovation or component using the services of a licensed professional surveyor. The surveyor(s) employed to establish this system or to extend and maintain an existing benchmark system for the work of other trades shall have not less than five years of experience in performing construction surveys similar to the work they will perform



for this project. The remaining Contractors and their respective subcontractors shall be responsible for extending these lines, levels and grades, and for performing all layout for their own work. The Contractor is solely responsible for any damage or loss due to incorrect extension of lines, level or grades in their layout. The Contractor and its subcontractors shall be responsible for the accuracy with respect to the layout of their work. Any discrepancies or errors in the drawings, perceived by another contractor or subcontractor shall be immediately reported to the Construction Manager. If any corrections are necessary, they shall be executed in accordance with the terms and provisions of these General Conditions.

2. The Contractor and its subcontractors shall be responsible to offset or to protect their markings from anything that may disturb them.

3. Every contractor shall work off the lines and elevations established and maintained as the baseline and benchmark system.

4. Each Contractor is responsible for the accuracy of his own work.

P. The Architect may require that construction work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking completed work or the work in progress.

Q. Except for the basic building permit, the Contractor shall be responsible for securing and maintaining for the life of the project: all permits, P.E. Licenses, connection fees, inspections, etc. applicable to, or customarily secured for the work. This provision includes any permits to be issued in the name of the Contractor required for the work. Originals of all permits are to be issued in the name of the Contractor as required for the work. The Contractor shall furnish the Construction Manager with original copies of all permits prior to the commencement of the work, and shall prominently display a copy of all permits at a location approved by the Construction Manager.

R. The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect at once.

S. The exactness of grades, elevations, dimensions, or locations given on any Drawings issued by the Architect, or the work installed by other contracts, is not guaranteed by the Architect or the Owner. The Contractor shall, therefore, satisfy itself as to the accuracy of all grades, elevations, dimensions, utilities and locations. In all cases of interconnection of its Work with existing or other work, it shall verify at the site all dimensions relating to such existing or other work. Any errors due to the Contractor's failure to so verify all such grades, elevations, locations or dimensions shall be promptly rectified by the Contractor without any additional cost to the Owner.



T. 1. The Contractor shall give the Architect timely notice of any additional design drawings, specifications, or instructions required to define its work in greater detail, or to permit the proper progress of its work. To the extent the Architect advises the Contractor that the existing design drawings, specifications and/or instructions given are sufficiently detailed for the Contractor to perform its work, the Architect shall be under no obligation to further clarify or define the work to be performed. In all other circumstances, the Architect shall issue a field order which responds to the request for information.

2. Requests for Information (RFIs) are for requests on clarifications or questions on contract drawings and specifications, not contract terms, scheduling items, or general correspondence, nor, as a means to describe or request approval of alternate construction means, methods or concepts or substitution of materials, systems means and methods. The Contractor shall fill all RFIs out in accordance with the provisions of the Project Manual. Neither the Architect nor the Construction Manager shall fill said forms out on the Contractor's behalf.

U. The Contractor shall, prior to the start of any portion of the Work:

1. review any specified construction or installation procedures, including those as may be recommended by the proposed manufacturer.
2. advise the Architect if the specified procedure(s) deviates from good construction practice.
3. advise the Architect if following said procedure(s) will affect any warranty, including the contractor's general warranty.
4. advise the Architect of any objections the Contractor may have to the specified procedure(s).
5. propose any alternative procedure(s) which the Contractor will warrant.

V. 1. To the fullest extent possible, the Contractor shall provide products of the same kind, from a single source. When two or more items of same material or equipment are required (pumps, valves, air conditioning units, etc.), they shall be of the same manufacturer. Product manufacturer uniformity does not apply to raw materials, bulk materials, pipe, tube, fittings (except flanged and grooved types), sheet metal, wire, steel bar stock, welding rods, solder, fasteners, motors for dissimilar equipment units, and similar items used in the work, except as otherwise indicated. The Contractor shall provide products which are compatible within systems and other connected items. If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.



2. The Contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

3. With respect to sitework materials, all products submitted for use and incorporated into this project shall be on the Approved List of Materials and Equipment published by the NYSDOT Materials Bureau, most recent edition.

4. All products submitted for use and incorporated into this project shall be asbestos free.

W. Equivalents. In the Specifications, one or more kinds, types, brands, or manufacturers or materials are 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, or manufacturer or material other than those named in the specifications, they shall indicate in writing, and prior to award of contract, what kind, type, brand or manufacturer is included in the base bid for the specified item. The Contractor shall follow the submission requirements for substitutions as set forth in Article 6.X below.

X. 1. Substitutions. If the Contractor desires to substitute any kind, type, brand, or manufacturer of material other than those named in the Specifications, the Contractor shall indicate the desired substitution in its bid, including the following:

a. For which specified material or equipment the request for substitution is being made;

b. What kind, type, brand, or manufacturer is sought to be substituted for the specified items;

c. Written documentation evidencing that the substituted material or equipment meets or exceeds the specifications for materials and/or equipment set forth in the project manual. Such documentation shall include, but not limited to, a full explanation of the proposed substitution, together with a submittal of all supporting data including technical information, catalog cuts, warranties, test results, installation instructions, operating procedures, significant qualities of proposed substitution (e.g. performance, weight, size, durability and visual effects), and other like information necessary for a complete evaluation of the substitution. Additionally, the Contractor shall provide material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated. All such data shall be provided to the Architect and Owner at the Contractor's sole expense. The Contractor's written explanation shall also include a list of reasons the substitution is advantageous and necessary, including the benefits to the Owner and the project in the event the substitution is acceptable. Additionally, the Contractor shall submit to the Architect information



describing in specific detail how the proposed substituted product differs from the quality and performance required by the base specifications, and such other information as may be required by the Owner or the Architect.

d. 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 that will be necessary to accommodate proposed substitution.

e. Samples, where applicable or requested.

f. 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 lack of availability or delays in delivery.

g. Detailed comparison of the difference in cost between the specified product and the proposed substitution including any and all costs associated with changes or modifications needed to other parts of the work and to construction performed by the Owner and/or separate Contractors that will be necessary to accommodate proposed substitution. In the event the substitution is accepted, the Contractor proposing the use of the substitution shall bear all costs associated with said changes or modifications.

2. By making said requests in conformance with procedures established herein and elsewhere in the Project Manual, the Contractor:

a. Represents that a representative of it has personally investigated the proposed substitute product and has determined that it is equal to or superior in all respects to that specified.

b. Represents that the warranty for the substitution will be the same, or greater than, that applicable to the specified product.

c. Certifies that the cost data is complete and includes all related costs under this contract, including professional services necessary and/or required for the architect and engineers to implement said substitution and waives any and all claims for additional costs related to the substitution which subsequently become apparent.

d. Represents that it will coordinate the installation of the accepted substitute, making all such changes to the drawings effected by the change, including but not limited to the electrical, plumbing, site work and heating and ventilating specifications as may be required for the work to be complete in all respects.



e. An affidavit stating that (1) the proposed substitution conforms and meets all the requirements of the pertinent Specifications and the requirements shown on the Drawings and (2) the Contractor accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Architect; and the proposed substitution will have no effect on the construction schedule.

3. Proposals for substitutions shall be submitted with the Contractor's bid.

4. No substitutions will be considered or allowed without the Contractor's submittal of complete substantiating data and information as stated hereinbefore.

Y. 1. Submittal of shop drawings, product data, material safety data sheets, samples or similar submittals shall be in accordance with the provisions of the project manual.

2. The Contractor represents and warrants that all shop drawings have been prepared by persons and entities possessing expertise and experience in the trade for which the shop drawing is prepared and, if required by the Architect or applicable law, by a licensed engineer, job specific, reviewed by Contractor and stamped by the Contractor.

3. If the Contractor elects to perform its work without approvals, such work shall be at the Contractor's own risk and expense.

4. By approving and submitting shop drawings, product data, samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto and has checked and coordinated the information contained within such submittals with the requirements of its work.

5. The Contractor shall not be relieved of responsibility for deviations from requirements of its work by the Architect's approval of shop drawings, product data, samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors and/or omissions in the shop drawings, product data, samples or other of its submittals to the Architect, by the Architect's approval thereof.

6. The Architect shall review, approve, reject or take other appropriate action respecting submittals made by the Contractor as set forth in the Project Manual. The Architect shall check for conformance with information given in the drawings and project manual and the design concept expressed in the agreement between the Owner and the Contractor. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities or for substantiating instructions for installation or performance of equipment or systems designed by the Contractor, all of which remain the responsibility of the Contractor. Further, the Architect's review shall not constitute



approval of safety precautions or, unless otherwise specifically stated by the Architect, of 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. When professional certification of performance characteristics of materials, systems or equipment is required by the Contract Documents, the Architect shall be entitled to rely upon such certification to establish that the materials, systems or equipment will meet the performance criteria required by the Contract Documents.

7. Upon the Architect's rejection of the Contractor's shop drawings, product data, samples and/or other documentation submitted by the Contractor to the Architect, the Contractor shall review the rejection and re-submit such shop drawing, product data, sample and or other document in accordance with the Architect's instruction. The Contractor shall direct the Architect's specific attention in writing or on re-submitted shop drawings, product data, samples, or similar submittals, to revision which have been made, including revisions not specifically requested by the Architect. Resubmission of rejected documents shall be performed within two (2) calendar days. No claim for delay or cost shall be accepted as a result of rejected documents.

8. When professional certification of performance criteria of materials, systems or equipment is required of the Contractor, the Architect shall be entitled to rely in a reasonable and professional fashion upon the accuracy and completeness of such calculations and certifications provided, however, if the Architect, in its reasonable and professional judgment considers it advisable, the Architect shall verify the accuracy and completeness of any and all such calculations and/or certifications. In the event any and all such calculations and/or certifications are found to be inaccurate and/or incomplete by the Architect, the Contractor shall assume full responsibility and bear all costs attributable or related thereto, including, without limitation, the expense of the Architect's additional services associated with the verification of such calculations and/or certifications and the expense of the Architect's additional service made necessary by the failure of such calculations and/or certifications to be accurate or complete.

9. If the Architect is required to review the Contractor's submittal more than twice, the Contractor shall bear the cost and expense associated with such additional review as set forth in the Project Manual.

Z. The Architect will interpret and decide matters concerning performance under and requirements of the drawings and/or technical specifications on written request of the Contractor. Such interpretations may, at the Architect's option, be issued in the form of additional drawings or instructions indicating in greater detail the construction or design of the various parts of the Contractor's work. Such drawings or instructions may be forwarded by the Architect to the Contractor by field order, construction change directive or other notice to the Contractor. The Contractor shall execute the work for which it requested an interpretation in accordance with such additional drawings or instructions without additional cost or extension of its contract time. After a decision has been rendered by the Architect on a matter for which the Contractor sought the Architect's interpretation of the drawings and/or technical specifications, the Contractor shall proceed with the work as directed by the Architect. Failure to proceed with the work in



accordance with the Architect's interpretation may be used as a basis for termination of the Contractor's contract pursuant to Article 17 of these General Conditions.

AA. The Contractor shall maintain at the site one record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and the Construction Manager and shall be delivered to the Construction Manager for submittal to the Owner upon the completion of its work.

BB. The Contractor shall maintain at the site, and shall make available to the Owner, Construction Manager and Architect, one record copy of the Drawings (the "Record Drawings") in good order. The Record Drawings shall be prepared and updated during the prosecution of the Contractor's work. The prints for Record Drawing use will be a set of black line prints provided by the Architect to the Contractor at the start of construction. The Contractor shall maintain said set in good condition and shall use colored pencils to mark up said set with "record information" in a legible manner to show: (i) deviations from the Drawings made during construction; (ii) details in the work not previously shown; (iii) changes to existing conditions or existing conditions found to differ from those shown on any existing drawings; (iv) the actual installed position of equipment, piping, conduits, light switches, electric fixtures, circuiting, ducts, dampers, access panels, control valves, drains, openings, and stub-outs, etc.; (v) architectural and/or structural changes in the design; and (vi) such other information as either Owner or Architect may reasonably request. At the completion of the work, Contractor shall transfer all information on record drawings to reproducible drawings with new information clouded and noted. Such drawings shall be stamped with the Contractor's name and "AS-BUILT" in the lower right hand corner. The colored record drawing and the as-built reproducible drawing shall be forwarded to the Construction Manager for delivery to the Owner. Final payment and any retainage shall not be due and owing to Contractor until the Record and/or As Built drawings receive the approval from the Architect and the Owner (and all other closeout requirements are met).

CC. The Contractor shall maintain all approved permit drawings in a manner so as to make them accessible to government inspectors and other authorized agencies. All approved drawings shall be wrapped, marked and delivered to the Owner within sixty (60) days of final completion of the Contractor's work.

DD. Each Prime Contractor shall be furnished, free of charge, 3 copies of the Contract Documents and Project Manuals, including all Addenda. Any and all additional copies will be furnished to the Contractor at the cost of reproduction, postage and handling.

## **ARTICLE 7**

### **CONTRACTOR'S SAFETY/SECURITY PROGRAM**

A. 1. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of its work.



Prior to beginning any work, the contractor shall submit a copy of its corporate safety plan to the Owner and the Architect. Two (2) weeks after receipt of the Notice to Proceed, the Contractor shall provide a Site Safety/Logistics Plan to the Owner and the Architect. The site logistics plan should minimally include locations of the eight-foot high temporary fence and gates, traffic plans for deliveries and removals, refuse container locations, crane locations, pick locations, boom radius, and lift locations, stockpiles, toilet locations, site water and power locations, and safety. This plan shall also show the location of all staging and storage areas, clearly separating construction and school areas. The logistical information represented by the construction documents shall serve as a minimal guide. Each contractor is required to submit their corporate safety policy within ten (10) days of receipt of the Notice to Proceed. Said policy must minimally meet OSHA standards and define details concerning the maintenance of a safe work environment and shall also define practices for the maintenance of hygiene and minimizing the spread of infectious/contagious diseases. The Contractor shall make the participation of its subcontractors in its safety program mandatory. A list of key personnel, with addresses and telephone numbers for emergency purposes shall be forwarded to the Owner and the Architect. The Owner and the Architect shall establish a fire coordination procedure and shall forward same to the Contractor for its use during the performance of its work.

2. The Contractor shall provide its COVID-19 Safety Plan to the Owner prior to the start of any work. The Contractor shall designate a person on its staff to be responsible for monitoring the wearing of Personal Protective Equipment (PPE) by each person on site working with or for the Contractor. Contractor shall strictly follow and ensure that its subcontractors follow Contractor's COVID-19 Safety Plan as well as all applicable Center for Disease Control guidelines and Local, State & Federal Orders.

3. All laborers, workers, and mechanics employed in the performance of the work of this Project shall be certified as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration.

4. The Contractor and its subcontractors shall conduct their operation in accordance with the Safety Guides for Construction as issued by the SED, and the Contractors' Safety Program.

5. All safety equipment including hard hats and weather protective gear required for the Contractor to perform its work are to be supplied by the Contractor and/or its subcontractors. Within the designated construction areas, the Contractor's employees, superintendents, and/or other agents, and its subcontractors, employees, superintendents, and/or other agents are required to wear hard hats and other required and/or essential safety equipment. Each person seen without a hard hat, or otherwise failing to comply with this requirement, will be ordered to leave the project. No prior warnings will be given by the Owner or Construction Manager and Architect. The Contractor and its subcontractors shall be solely responsible for making up and paying for any loss of production or required progress resulting from the removal of personnel from the project as set forth herein including any costs incurred by the Owner in connection with the work of other contractors.



6. The Contractor and its subcontractors shall provide blankets and auxiliary fire protection as part of its construction safety program to prevent damage to adjacent work or materials as a result of its welding or burning operations. Additionally, as part of its construction safety program, the Contractor and its subcontractors shall provide a fire watch, with a fire extinguisher, which is acceptable to the Owner and the Construction Manager.

7. The Construction Manager and/or Owner reserve the right to have all operating equipment periodically inspected by an independent inspector whose finding will be binding. The Prime Contractor, at its own expense, must make corrections within two (2) working days of receiving a written report.

8. All flagmen required for deliveries to the site are to be furnished by the Contractor or its Subcontractors responsible for the delivery. Any and all deliveries crossing the site or student traffic areas shall be escorted by flagmen. All flagmen shall wear orange vests.

B. The Contractor shall schedule weekly safety meetings and each of its subcontractors must be properly represented at such meetings. The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. The Contractor shall notify the Construction Manager in writing its "OSHA Competent Person Regarding Safety". Said person must be an individual capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Construction Manager and Architect. The Contractor shall take all necessary steps to prevent its employees from disturbing and/or damaging the facility and shall be responsible for preventing the escape of fires set in connection with the construction. The Contractor shall notify its employees and subcontractors of the location of the nearest fire alarm box at all locations where the work is in progress. On a weekly basis, the Contractor shall submit to the Construction Manager and Architect minutes of its safety meetings, which minutes shall include a list of the individuals present at such meetings.

C. The Contractor and each of its subcontractors shall conduct its/their operation in accordance with all applicable laws, regulations and order of local, state and federal governments. The Contractor agrees, in order that the work will be completed with the greatest degree of safety to conform to the requirements of the Occupational Safety and Health Act of 1970 (OSHA) and the Construction Safety Act of 1969, including all standards and regulations that have been since or shall be promulgated by the governmental authorities which administer such acts.

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



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

F. The Contractor shall take reasonable precautions for the safety and protection of employees at the project site and other person who may be affected by its work, including but not limited to students, staff, employees and agents of the Owner, the Construction Manager and the Architect.

G. The Contractor shall protect and secure its work and the materials and/or equipment to be utilized in connection with its work, whether stored on or off the site and whether in its care, custody and control or that of its Subcontractors, subcontractors to its subcontractors, or material suppliers.

H. The Contractor shall take all steps necessary to protect all property at or adjacent to the site, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

I. All delivery vehicles/trucks/machinery/etc. permitted on the site must be equipped with back-up alarms and enter through the designated access points. The Contractor's failure to demonstrate this ability will result in cancellation of delivery or stoppage of work. All delays associated with this cancellation will be the responsibility of the contractor responsible for the work involved.

J. All crane picks, materials delivery, etc. must be coordinated so as not to lift over any occupied area of the building. If absolutely necessary, this work shall be done on off hours to insure the safety of the building occupants. Crane location must approved by the Construction Manager to insure the safety of building occupants.

K. The Owner or Construction Manager reserves the right to have all hoisting equipment periodically inspected by an independent inspector whose findings will be binding. The Contractor, at its own expense, must make corrections cited by the inspector before continuing work. The Owner or Construction Manager will not assume any responsibility for the safe operation of any hoisting equipment by exercising this right. The Contractor and/or its subcontractor(s) shall cooperate with the inspector by allowing time for the inspection. The Contractor shall be notified twenty four (24) hours prior to the time of the inspection. These inspections do not release the Contractor if its responsibility to provide all engineering, permits and inspections as required by OSHA or the New York State Education Department prior to use of any hoisting equipment.

L. The Contractor shall use the entrances designated on the site logistic plans and drawings for personal vehicles, trucks, equipment, deliveries and the like.

M. All interior temporary partitions and emergency egress barriers (if required) are to be



installed on an after hours basis (weekends/school holidays).

N. 1. When use or storage of hazardous materials or equipment or unusual construction methods are necessary to perform its Work, the Contractor shall obtain the Owner and the Construction Manager's consent for the use of such materials, equipment or unusual construction methods. In the event the Owner determines that the use of such hazardous material or equipment or unusual construction methods can be performed by the Contractor with alternative means, methods and/or techniques, the Contractor shall employ such alternate means of prosecuting its work at no additional cost to the Owner.

2. In the event the Owner approves the use or storage of such hazardous materials, equipment or unusual construction methods, the Contractor shall provide for the Owner's and the Construction Manager's use a full set of safety instructions relating to all such materials. Additionally, when the Owner and/or the Construction Manager reviews the use of storage of such hazardous materials, equipment and or unusual construction methods, the Contractor shall exercise the highest degree of care and carry on such activities under supervision of properly qualified personnel.

3. Transportation, storage, and use of explosives shall be in strict accordance with all local, state and federal regulations, statutes, and requirements. All safety precautions as set forth in the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc. shall be observed.

4. The Contractor is responsible for its own storage and personnel trailers at the site. The Contractor will be required to supply man trailers and storage box trailers as required. All costs related to delivery, construction, protection, power, etc. for said trailers are the responsibility of the contractor utilizing the space. The Owner WILL NOT PROVIDE STORAGE SPACE. The placement of personnel and/or storage trailer will be strictly limited to pre-determined locations. The Contractor shall obtain the written approval of the placement of any trailer or storage box from the Construction Manager.

O. During construction, the General Contractor shall be responsible for maintaining a watertight structure. This shall include additions and existing buildings. The contractor shall be responsible for temporary roofing, tarps and other protection at roofs, cavity walls, etc. Should the contractor fail to provide adequate protection, causing flooding, damage or other disturbance to the existing building, contractor shall be responsible for all costs associated with clean up and repairs. Inasmuch as flooding and damage have safety implications to the general public, clean up and repairs may be made by the Owner without warning to the Contractor. Administration costs incurred by the Owner and Architect will also be back charged to the Contractor. The Contractor, by entering into contract with the Owner agrees to be liable for these costs.

P. When all or a portion of the Contractor's work is suspended for any reason, the Contractor shall securely fasten down all coverings and protect the work, as necessary, from injury by any cause.



Q. 1. The Contractor shall promptly remedy damage and loss to all property of the Owner, or adjacent to the Owner's property (other than damage or loss covered by insurance) 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, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor.

2. Title to all completed or partially completed work at the job site, and to all materials delivered to and stored at said job site which are intended to become a part of the completed work covered by the agreement between the Contractor and the Owner, shall be in the name of the Owner. Notwithstanding the foregoing, and prior to acceptance of the completed work by the Owner, the Contractor shall be liable for all loss of or damage to said completed work, partially completed work, materials furnished by the Contractor, and/or materials or equipment furnished by others, the custody of which has been given to the Contractor, arising from any cause other than those against which the Owner herein undertakes to carry insurance. In the event of loss or damage from cause other than those against which the Owner undertakes to carry insurance, the Contractor shall replace or repair the said work or materials at his own cost and expense, to the complete satisfaction of the Owner, the Construction Manager and the Architect.

R. The Contractor shall promptly report in writing to the Owner, the Architect and the Construction Manager all accidents arising out of or in connection with the Work which cause death, person injury, or property damage, giving full details and statements or any witnesses. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner, Construction Manager and the Architect.

S. 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.

T. Any and all fines or citations levied against the Owner, Architect, or Construction Manager due to the failure of the Contractor to comply with regulations of any governing authority, shall be paid for by the Contractor. This shall include any interest or late charges which accrue due to the Contractor's failure to remit payment upon receipt of such levies.

U. The Contractor shall indemnify and hold harmless the Owner, Construction Manager and Architect from any and all claims, damages, losses, suits, obligations, fines, penalties, costs, charges and expenses which may be imposed upon or incurred by or asserted against any of them by reason of any act or omission of such Contractor or any subcontractor or any person or firm directly or indirectly or indirectly employed by such Contractor, with respect to violations of OSHA requirements, rules and/or regulations.

V. The Contractor acknowledges that the Labor Law of the State of New York, and regulations adopted thereunder, place upon both the Owner and Contractor certain duties and



that liability for failure to comply therewith is imposed on both the Owner and Contractor regardless of their respective fault. The Contractor hereby agrees that, as between the Owner and the Contractor, and to the extent permitted by law, the Contractor is solely responsible for compliance with all such laws and regulations imposed for the protection of persons performing the Contract.

W. The Contractor shall indemnify and hold harmless the Owner, Architect, and Construction Manager, of and from any and all liability for violation of such laws and regulations and shall defend any claims or actions which may be brought against the Owner as the result thereof. In the event that the Contractor shall fail to refuse to defend any such action, the Contractor shall be liable to the Owner for all costs of the Owner, Architect or Construction Manager in defending such claim or action and all costs of the Owner, including attorney's fees, in recovering such defense costs from the Contractor.

X. The Contractor and its subcontractors shall indemnify and hold harmless the Owner, Construction Manager and Architect from any and all claims, damages, losses, suits, obligations, fines, penalties, costs, charges and expenses which may be imposed upon or incurred by or asserted against any of them by reason of any act or omission of such Contractor or any subcontractor or any person or firm directly or indirectly employed by such Contractor, for the act and/or omissions of any Contractor or Subcontractor that resulted in an incident and/or accident causing personal injury and/or property damage.

Y. The Construction Manager, the Owner, and/or the Architect will not assume any responsibility for the safe operation of any cranes or equipment by exercising this right. The Contractor and its subcontractors shall cooperate with the inspector by allowing time for inspection. The Contractor will be notified 24 hours prior to the time of the actual inspection. The Contractor is obligated to perform all engineering, obtain permits, and to have all hoisting equipment inspected as required by OSHA, Village, Town, County, State, and Federal regulations as well as any other agency having jurisdiction. Copies of all inspection reports and certificates must be transmitted to Construction Manager as soon as possible.

## **ARTICLE 8 CHANGES IN THE WORK**

A. Without invalidating the agreement between the Owner and the Contractor, and without notice to the Contractor's surety, the Owner may, at any time or from time to time, order additions, deletions or revisions in the Contractor's work. Such additions, deletions or revisions will be authorized by field order, change order, or construction change directive.

B. Field Orders are an interpretation of the contract drawings and/or specifications which order minor changes in the Contractor's work which will not result in an increase or decrease in the Contractor's total contract sum. From time to time, the Architect may issue field orders to the Contractor. The work included in such field order shall be performed by the Contractor at no additional cost to the Owner and shall not form the basis for a claim for an extension of time of the Contractor's time to complete its work. Hence, the Contractor shall perform the work



included in field orders so as to cause no delay to its work and/or the work of other contractors engaged by the Owner in connection with the project. All field orders shall be given to the Contractor and the Construction Manager by the Architect in writing.

C. 1. When the Owner or Architect (in association with the Construction Manager) request that the Contractor perform work which is not included in the contract drawings or specifications and which will result in additional cost to the Owner, the Architect/Construction Manager shall issue a PCO Number and shall request that the Contractor submit its proposal for performing such additional work. The Contractor shall submit its proposal to the Construction Manager and Architect for review. The Contractor's proposal shall include a complete itemization of the costs associated with performing its work including labor and materials. All proposals for any work that a Contractor, its subcontractor(s) or subcontractor(s) of subcontractor(s) perform in connection with additional work shall be submitted using the following format and in no event shall the total for overhead and profit on any change order exceed fifteen percent (15%) of the cost of the work.

1.	Materials (Itemized Breakdown) including quantities and cost	
2.	Labor (Itemized Breakdown)	
3.	Subtotal (Add lines 1 and 2)	
4.	Credit for work not required due to additional or changes to the work reflected in the within change order (if any)	
5.	Overhead (10% x line 3)	
6.	Subtotal (Add lines 3 through 5)	
7.	Sub-Contract Work (Include itemized breakdown. Sub-Contractor(s) overhead and profit allowed is 10%)	
8.	Subtotal (Add lines 6 and 7)	
9.	Profit (5% x line 8)	
10.	Subtotal (Add lines 8 and 9)	
11.	Rental Value of Equipment (Itemized Breakdown)	
12.	Actual additional charges for bonds	
13.	TOTAL CHANGE ORDER (Add lines 10, 11 and 12)	

2. All proposals submitted by the Contractor without the itemization indicated herein will be returned to the Contractor for re-submission by the Contractor. For any work performed by the Contractor's own forces, fifteen percent (15%) for overhead and profit will be allowed for labor and material related costs. Costs to which overhead is to be applied shall be limited to cost of labor and materials including the cost of delivery. Under no circumstances shall any change order proposal exceed fifteen percent (15%) of the cost of overhead and profit.

The Contractor shall not be entitled to recover overhead and profit on the rental value of equipment and machinery. "Equipment and machinery" shall not include (1) tools customarily used by the contractor's trade, including but not limited to hand tools, and/or (2) equipment and machinery already on site and being utilized by the Contractor for the original scope of work.



The Contractor shall submit with its change order proposals actual invoices from its insurance broker reflecting actual additional costs associated with the procurement of bonds.

3. The Contractor's subcontractor's proposal for any work it is to perform in connection with the additional work shall only include ten percent (10%) for the subcontractor's overhead and profit including sub-subcontracted work. The Contractor is entitled to five percent (5%) on work performed by its subcontractor in accordance with paragraph C (1) of this Article 8. Costs to which overhead is to be applied shall be limited to cost of labor and materials including the cost of delivery. Under no circumstances shall the Contractor or the Contractor's subcontractor(s) be entitled to be reimbursed for overtime, except when specifically approved by the Owner in writing and not as an Extraordinary Measure as set forth in Article 13, and in such event the Contractor shall be paid for by the Owner on the basis of premium payment.

4. Notwithstanding the foregoing, work which is performed pursuant to an allowance included in the Contractor's base contract, the provisions of Article 9, paragraph B, concerning itemization of such work shall be controlling.

5. a. A change in the Contract Sum shall be accomplished only by a written Change Order. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any claim as defined in Article 18 of these General Conditions to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents. **No amount shall be payable by the Owner to the Contractor for performance of work without a written and fully executed Change Order.**

b. Upon the Contractor's completion of the change order work, and prior to payment being made to the Contractor for such work, the Contractor shall provide the Owner with the following information:

1. Certified payrolls itemizing the labor actually utilized in connection with the change order work.
2. Copies of invoices from subcontractors supplying work in connection with the change order work.

D. 1. When the Owner or Architect request that portions of the Contractor's work originally included in the contract drawings or specifications be deleted and which will result in a reduction of the Contractor's original contract sum, the Architect shall request that the Contractor submit its proposal for deleting the scope of such work from its contract. The Contractor's proposal shall include a complete itemization of the costs associated with deducting such work including labor and materials and shall be submitted using the format set forth in Article 8, paragraph C(1) of these General Conditions of the Contract for Construction or the schedule of values, whichever is greater. The Contractor shall not be entitled to retain its



overhead and/or profit for such work nor shall any of its subcontractors which were to perform the work being deducted from the Contractor's scope of work. Additionally, the Contractor shall reflect the reduced cost of premiums on bonds which are to be supplied herein as a result of such change. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase/decrease with respect to that change.

2. The Owner may in its sole discretion deduct and/or reduce the scope of the Contractor's contract with or without any specific reasons therefor.

E. 1. In the event the Contractor and the Owner cannot agree on the sum by which its contract with the Owner is to be increased or reduced based upon changes to the scope of the work as described in Article 8, the Architect shall issue a construction change directive reflecting the deduction and/or reduction of the scope of the Contractor's contract and the Contractor will (a) in the case of additional work to be performed by the Contractor, perform such additional work in an expeditious manner so as not to delay the work of this or other contractors working at the site, and (b) in the case of work to be deducted from the scope of the Contractor's work, refrain from taking any steps in connection with the work associated with the deduction and/or reduction of the scope of the Contractor's work. The construction change directive shall include (a) a description of the work being added or deducted from the Contractor's scope of work; (b) the amount the Owner has determined to be the cost associated with the additional work or deduction and/or reduction of the scope of the Contractor's contract until the Owner and the Contractor agree upon the increase or decrease in the Contractor's contract sum, or until a claim filed by the Contractor has been determined; (c) the extent to which the contract time will be adjusted as a result of the change in the scope of work. Any claims must be filed in accordance with the requirements set forth in Article 18 of these General Conditions. Failure to timely file any claim in accordance with requirements set forth therein shall constitute a waiver of such claim.

2. In the event the Contractor and the Owner reach agreement on the amount by which the Contractor's contract sum is to be increased or decreased based upon changes to the scope of the Contractor's work as described in Article 8, the Architect, Owner, Construction Manager and Contractor shall sign a change order reflecting such agreement. The change order shall include (a) the description of the change in the scope of the Contractor's work; (b) the amount of the adjustment to the Contractor's contract sum, if any; and (c) the length of time by which the time to complete the contract will be adjusted, if any. Agreement between the Owner and the Contractor in connection with any change order shall constitute a final settlement of all matters relating to the change in the Contractor's work as reflected in said change order, including but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contractor's contract sum and the construction schedule. All such change orders for which the Owner and the Contractor have reached agreement shall be included as a separate line item in the Contractor's applications for payment as if originally part of the Contractor's agreement with the Owner.

F. Neither the Owner, the Construction Manager nor Architect may issue instructions to the



Contractor to change the amount of the Contract, except by properly executed Change Orders. Instructions are issued by the Owner or the Construction Manager through the Architect, to the Contractor. The instructions shall not be carried out by the Contractor prior to a written order in the form of a Change Order, signed by the Owner, Architect and Contractor, authorizing a change in the Contract amount or an adjustment to the Contract Sum. No amount shall be payable by the Owner to the Contractor for performance of work without an executed Change Order.

## **ARTICLE 9 PAYMENTS**

A. 1. Prior to commencing its work on the project and within one (1) week of receipt of a Notice to Proceed, the Contractor shall submit to the Construction Manager and the Architect, a schedule of values which includes the amount of money it has allocated in its bid price for the following items of work which are applicable to the Contractor's work. Said schedule of values shall include each of the CSI division sections reflected in the specifications and applicable to the contract for which the Contractor has been awarded the contract, together with the requirements for bonds/insurance (based upon actual invoice amount), general conditions, meeting attendance and meeting documentation (at least two (2) percent of the contract sum), shop drawing/product data/sample submissions (at least one (1) percent of contract sum), labor and materials on line items as applicable, temporary utilities and services, HVAC balance reports, coordination drawings, punchlist (at least one (1) percent of the contract sum), warranties/guarantees and close out of the project (at least three (3) percent of the contract sum), and allowance, where applicable.

2. Any schedule of values which fails to include sufficient detail, is unbalanced or exhibits "front loading" of the value of the Contractor's work will be rejected. Furthermore, if the schedule of values has been approved by the Construction Manager and the Architect and is subsequently used, but later is found by the Construction Manager or Architect to be improper for any reason, sufficient funds shall be withheld from the Contractors' future applications for payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Contractor's work.

3. The schedule of values shall be drafted so as to reflect multiple construction sites, multiple locations within each site, additions versus renovations of work, and the like so as to satisfy any New York State Education Department requirements for the project.

4. The Schedule of Values prepared by the Contractor must be approved by the Construction Manager and the Architect prior to the payment of any sums due the Contractor.

B. The Contractor shall include in its contract sum all allowances stated in the specifications. However, the Contractor's costs for unloading and handling at the site, overhead, profit and other expenses contemplated for the stated allowance amounts shall be included in its contract sum and not in the allowances.



C. The Contractor shall submit its applications for payment to the Construction Manager and the Architect on a periodic basis. The form to be used by the Contractor shall be AIA G732 and 703/CMA approved by the Construction Manager, the Architect and the Owner for use in connection with the Contractor's work. The form shall be divided in sufficiently in the same form as the Contractor's schedule of values and shall reflect in separate line items for the work:

1. Total value of the work listing labor and material separately
2. Percentage of work completed at the time of submission of the application for payment
3. Value of the work completed at the time of submission of the application for payment
4. Percent of previous amount billed
5. Previous amount billed
6. Current percent completed;
7. Value of work completed to date
8. Percent remaining to be completed by the Contractor; and
9. Value of work remaining to be completed by the Contractor

D. 1. Payments to the Contractor shall be based upon materials and equipment delivered and suitably stored at the site and/or incorporated into the Contractor's work, together with the labor utilized by the Contractor in connection with its work. The Contractor may be paid for materials and/or equipment which has been delivered to the Owner's facilities but which, at the time of submission of its application for payment, has not yet been incorporated into the Contractor's work upon such conditions and requirements as the Owner, the Construction Manager and/or the Architect may advise the Contractor it must satisfy.

2. The Construction Manager and Architect shall review the application for payment submitted by the Contractor and shall advise the Contractor of any adjustments to be made thereto. The Construction Manager and/or the Architect may make such adjustments under the following circumstances:

- a. the Contractor's failure to remedy defective work;
- b. the filing of third party claims or reasonable evidence that there is a probability that such claims will be filed;
- c. receipt by the Owner of a notice of withholding from the New York State Department of Labor or other administrative agencies having jurisdiction over the project;
- d. the Contractor's failure to make proper payments to its subcontractors or material suppliers for labor, materials and/or equipment;
- e. reasonable evidence that the Contractor will not complete its work for the unpaid balance of the remaining monies on its contract;



- f. damages caused to the Owner, Construction Manager, the Architect or another contractor as a result of the Contractor's performance of its work;
- g. reasonable evidence that the Contractor will not complete its work in accordance with its agreement with the Owner, and/or that the remaining monies available on the Contractor's contract will not be sufficient to cover actual or liquidated damages for the anticipated delay;
- h. the Contractor's failure to carry out its work in accordance with the contract drawings and/or specifications;
- i. the Contractor's failure to notify the Architect of errors or inconsistencies between and among the contract drawings and specifications;
- j. the Contractor's and/or its subcontractors' failure to comply with the requirements for maintaining record drawings;
- k. the Architect's and/or the Construction Manager's discovery or observation of work which has been previously paid for by the Owner which is defective and/or incomplete;
- l. such other acts and/or omissions by the Contractor in connection with the performance of its work.
- m. The amount requested exceeds the percent completion of work on the site.

3. After any such adjustments are made to the Contractor's application for payment, the Contractor shall submit four (4) copies of the final draft of its application for payment to the Construction Manager and Architect, which shall be accompanied by the following documentation:

- a. A current Contractor's lien waiver and duly executed and 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 suppliers 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;
- b. Duly executed waivers of public improvement liens from all Subcontractors and material suppliers and lower tiered Subcontractors or material suppliers establishing payment or satisfaction of payment of all amounts requested by the Contractor on behalf of such entities or persons in any previous Application for Payment; and AIA Form G706 or G706A.



- c. Certified payroll for employees of the Contractor and employees of subcontractors performing work on the Project.
  - d. Copies of invoices submitted to the Contractor by its subcontractors and/or material suppliers.
  - e. Such other information which the Owner, Construction Manager and/or the Architect request the Contractor furnish in connection with its application for payment, including but not limited to, contractor change order log, contractor submittal log and as built drawings to date.
4. Upon submission of its application for payment, the Contractor represents that it is entitled to payment in the amount for which it seeks payment.
5. In addition to the right to make adjustments to the amount the Contractor claims is due (as set forth in subparagraph 2 of this Paragraph D), the Owner may withhold payment from the Contractor and the Architect and/or Construction Manager may withhold certification for payment, if any of the reasons set forth in subparagraph 2 exist.
6. The Owner shall make payment to the Contractor within forty-five days of receipt of the Contractor's requisition of payment unless such requisition of payment is not in accordance with the terms of the Construction Documents.
7. Upon receipt of payment by the Owner, the Contractor shall promptly make payment to each of its subcontractors and/or material suppliers for which it has received payment from the Owner. This provision does not obligate the Architect, the Construction Manager and/or the Owner to ensure payment to the Contractor's subcontractors and/or material suppliers.
8. a. In the event a subcontractor and/or material supplier files with the Owner a public improvement lien, the Owner shall withhold payment on previously certified applications for payment which have not yet been paid or subsequent applications for payment submitted by the Contractor an amount equal to 150% of the amount set forth in such public improvement lien. This provision is in addition to and does not supersede the indemnity provisions set forth in Article 12 of these General Conditions.
- b. The Owner may release any payment withheld due to the filing of a public improvement lien if the Contractor obtains security acceptable to the Owner or a lien bond which is: (1) issued by a surety acceptable to the Owner, (2) in form and substance satisfactory to the Owner, and (3) in an amount not less the 150% of such lien claim. The cost of the premiums for any such bond posted shall be borne solely by the Contractor. By posting



a lien bond or other acceptable security, however, the Contractor shall not be relieved of its obligations pursuant to these General Conditions, including but not limited to the indemnity provisions set forth in Article 12 of these General Conditions.

E. 1. The Contractor shall not be entitled to payment for materials and/or equipment stored off the site unless previously approved in writing by the Owner, Architect, and/or the Construction Manager and upon the Contractor meeting any and all conditions which the Owner, the Architect and/or Construction Manager may impose in connection with such materials and/or equipment, including but not limited to insurance for such materials and cost of storage and transportation associated with such materials and/or equipment. No payment will be made for "commodity type" stored materials such as block, studs, sheetrock, roofing, insulation, piping, fittings, conduit work, etc.

2. In connection with materials and/or equipment stored off the project site, the Contractor must submit with its application for payment the following information:

- a. Type of material must be specifically identified by the Contractor;
- b. The Contractor must furnish an invoice from its supplier showing the total value of material and/or equipment being stored off site and must provide the bill of lading for such material and/or equipment;
- c. The Contractor must provide a Certificate of Insurance in a form approved by the Owner for the full value of the item plus 10%.
- d. The Contractor must execute a security agreement, together with an executed UCC-1 form;
- e. The materials must be stored in a bonded warehouse;
- f. The Contractor must furnish a bill of sale for stored material and/or equipment;

Contractor still has liability for all materials whether paid or not until installed.

3. Any and all materials and/or equipment for which the Contractor has been paid shall be titled in the Owner upon installation by the Contractor and shall be stored in a bonded facility. For payment to be made to the Contractor, the Contractor must provide the Owner with a waiver of lien and general release from its supplier in connection with its provisions of such materials and/or equipment. Notwithstanding payment by the Owner, any and all warranties and/or guarantees required by this agreement shall not begin to run until the Contractor has completed all of its work.



4. Prior to payment by the Owner, the Contractor may be required to provide the Architect and the Construction Manager with an opportunity to visually inspect the materials and/or equipment for the purpose of determining that such materials are in fact in storage, are the materials specified for the Contractor's work and for any other purpose which the Owner, Construction Manager and/or Architect deem necessary for payment to be made to the Contractor.

F. If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to its agreement with the Owner, including but not limited to these General Conditions of the Contract for Construction, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained herein to the contrary, if the Contractor fails to promptly make any payment due the Owner, or the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective work, the Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, elect either to: (1) deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contractor's contract sum by an amount equal to that which the Owner is entitled.

G. The Contractor may not assign any monies due or to become due to it pursuant to its agreement with the Owner without the Owner's written consent. Any such assignment shall be in a form acceptable to the Owner. If the Contractor attempts to make such an assignment without such consent from the Owner, the Contractor shall nevertheless remain legally responsible for all obligations under its agreement with the Owner.

H. Progress payments and all other payments shall be made in accordance with Section 106 (b) of the General Municipal Law.

I. At the same time the Contractor submits its insurance certificate to the Owner and the Construction Manager, it shall also submit to the Construction Manager the labor rates of each category of labor for which it and/or its subcontractors shall employ (either directly or indirectly).

This information shall be itemized in the format shown below:

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Contractor's Name					
Contractor's Address					
Contractor's Office Phone					
Contractor's Fax Number					
Contractor's Email Address					
<b>Labor Rate Breakdown</b>					
Worker's Title		Journeyman	1.5 Rate	Foreman	1.5 Rate
Base Hourly Rate					
<b>Payroll Tax &amp; Insurance:</b>	<b>\$ Per Hr.</b>				
FICA					
Federal Unemployment					
State					
Workers Compensation					
Disability					
Other (Explanation Required)					
<b>Subtotal</b>					
<b>Benefits:</b>	<b>\$ Per Hr</b>				
Vacation					
Health & Welfare					
Pension					
Annuity					
401K Fund					
Other (Explanation Required)					
Other Explanation Required)					
<b>Subtotal</b>					
<b>Hourly Labor Rate</b>					

## ARTICLE 10 INSURANCE REQUIREMENTS

A. Within ten (10) days of the award of the bid, the Contractor, at its sole cost and expense, shall provide the Owner with the following insurance coverage whether the operations to be



covered thereby are through 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. Workers' Compensation and Disability:

Coverage	Statutory
Extensions	Voluntary compensation All states coverage employers Employer's liability - unlimited

2. Commercial General and Umbrella Liability

Coverage	Occurrence using ISO occurrence Form CG 00 01 07 98 or later form
Limits per project	\$1,000,000.00 per occurrence, \$2,000,000.00 general aggregate - on a per project basis  Products/Completed Operations - \$2,000,000.00  Personal & Advertising Injury - \$1,000,000.00  Fire Damage (any one fire) - \$100,000.00  Medical Expenses (any one person) - \$10,000.00

3. Owners and Contractors Protective Liability Insurance:

- a. \$2,000,000 per occurrence, \$4,000,000 general aggregate for contracts greater than \$1,000,000, or any contracts involving scaffolds or work above a height of one story.
  - b. \$1,000,000 per occurrence, \$2,000,000 general aggregate for contracts less than or equal to \$1,000,000 that do not involve scaffolds or work above a height of one story.
- Excess Liability (excess coverage shall be on a follow-form basis):
- a. \$10,000,000 for contracts greater than \$1,000,000, or any contracts involving scaffolds or work above a height of one story



- b. \$5,000,000 for contracts less than or equal to \$1,000,000 that do not involve scaffolds or work above a height of one story.
- 4. Automobile Liability  
(all vehicles hired or non hired) \$1,000,000.00 per accident
- 5. If this project requires the removal of asbestos and/or hazardous materials, Contractors shall provide hazardous material liability insurance as follows:  
  
\$2,000,000 per occurrence/\$2,000,000 aggregate, including products and completed operations. Such insurance shall include coverage for the Contractor's operations including, but not limited to, removal, replacement enclosure, encapsulation and/or disposal of asbestos, or any other hazardous material, along with any related pollution events, including coverage for third-party liability claims for bodily injury, property damage and clean-up costs. If a retroactive date is used, it shall pre-date the inception of the Contract. If motor vehicles are used for transporting hazardous materials, the Contractor shall provide pollution liability broadened coverage (ISO endorsement CA 9948), as well as proof of MCS 90. Coverage shall fulfill all requirements of this Article 10 and shall extend for a period of three (3) years following acceptance by the District of the Certificate of Completion.
- 6. Testing Company Errors and Omission Insurance  
  
\$1,000,000 per occurrence/\$2,000,000 aggregate for the testing and other professional acts of the Contractor performed under the Contract with the Owner.

Notwithstanding any terms, conditions or provisions, in any other writing between the parties, Contractor hereby agrees to effectuate the naming of the Owner, Architect and Construction Manager as an additional insured on the Contractor's commercial general liability and excess liability insurance policies. If the policy is written on a claims-made basis, the retroactive date must precede the date of the contract.

- a. The policy naming the Owner, Architect and Construction Manager as an additional insured shall:
  - i. Be an insurance policy from an A.M. Best rated "Secure" insurer, licensed and admitted to do business in New York State.
  - ii. State that the coverage shall be primary and non-contributory coverage for the District, its Board, employees and volunteers.



- b. The Owner, Architect, and Construction Manager shall be listed as an additional insured by using endorsement CG 2038 or equivalent. The decision to accept an alternative endorsement rests solely with the Owner. A completed copy of the endorsement must be attached to the certificate of insurance.
- c. The certificate of insurance must describe the work that is covered by the liability policies.
- d. At the Owner's request, the Contractor shall provide a copy of the declaration page of the liability and excess policies with a list of endorsements and forms. If so requested, the Contractor will provide a copy of the policy endorsements and forms.
- e. The Contractor agrees to indemnify the Owner, Architect and Construction Manager for any applicable deductibles and self-insured retentions.

If written on a "claims-made" basis, the retroactive date must pre-date the inception of the Contract or agreement. Coverage shall remain in effect for two years following the completion of work. The testing company shall also provide proof of Workers' Compensation and NY State Disability Benefits Insurance, Commercial General Liability and Excess Liability with limits of \$2,000,000 each occurrence and in the aggregate.

Coverages shall be maintained without interruption from the date of commencement of the work until the date of final payment and termination of any coverage required to be maintained after final payment.

B. Article 10 of the General Conditions shall remain in effect and the Contractor will be required to provide the insurance set forth therein. The Contractor will be permitted to commence work on the Project with the insurance certificates currently on file with the Owner. On or before July 15 of each year, the Contractor will substitute said insurance certificates with insurance in strict compliance with Article 10. In addition to any other rights or remedies that the Owner may have in law, equity or pursuant to the General Conditions of Construction set forth in the Agreement between the Owner and the Contractor, in the event the Contractor fails to provide evidence of the insurance required by Article 10 by July 15, the Owner shall assess liquidated damages of \$1,000 for every day the Contractor fails to meet the requirements for insurance as set forth in Article 10 through final completion of the Project or the date the required insurance is submitted, whichever is earlier.

C. The insurance required to be procured by the Contractor, pursuant to paragraph A of this Article 10, shall be purchased from and maintained by an insurance carrier licensed to do business in the State of New York, with an A.M. Best Rating of "secured" or better. The Contractor must submit the Certificate of Insurance to the Architect for the Owner's approval prior to the commencement of any work. **EXCESS OR SURPLUS LINE INSURANCE CARRIERS WILL NOT BE ACCEPTED.**



D. All insurance coverage to be provided by the Contractor, pursuant to paragraph A of this Article 10, shall include a cancellation notice to the Owner pursuant to the policy terms and conditions. All insurance coverage to be provided by the Contractor shall name the Owner, Architect, and Construction Manager as additional insureds on the policy, with the exception of Owners Contractors Policies. Additionally, the insurance coverage to be provided by the Contractor, pursuant to paragraph A of this Article 10, shall state that the Contractor's coverage shall be the primary and non-contributory coverage for the Contractor's work. Contractors shall include a completed copy of the ACORD 855 – NY Construction Certificate of Liability, with explanations of "yes" responses to Items G through L.

E. In the event that any of the insurance coverage to be provided by the Contractor to the Owner contains a deductible, or a self-insured retention, or the insurance provided by the Owner contains a deductible, the Contractor shall indemnify and hold the Owner, Construction Manager, and the Architect harmless from the payment of such deductible or self-insured retention, which deductible shall in all circumstances remain the sole obligation and expense of the Contractor.

F. The Contractor acknowledges that its failure to obtain or keep current the insurance coverage required by paragraph A of this Article 10 shall constitute a material breach of Contract and subjects the Contractor to liability for damages, including but not limited to direct, indirect, consequential, special and such other damages the Owner sustains as a result of such breach. In addition, the Contractor shall be responsible for the indemnification to the Owner, Architect, and Construction Manager, of any and all costs associated with such lapse in coverage, including but not limited to reasonable attorney's fees.

G. The Contractor shall require all Subcontractors to carry insurance coverages and limits of liability, as set forth in paragraph A of this Article 10 and submit same to the Owner for approval prior to start of any work. In the event the Subcontractor is unable to provide insurance by a carrier that is licensed and admitted to do business in New York, the Owner reserves the right to accept Excess or Surplus lines insurance coverage for said Subcontractor, in the Owner's sole discretion. Notwithstanding the foregoing, the Owner is under no obligation to waive the requirement that the insurance be supplied by an insurer licensed and admitted in New York. 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, Construction Manager, the Architect, Engineers, Consultants, and Sub-consultants and their agents or employees 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.

H. The Contractor assumes responsibility for all injury or destruction of the Contractor's materials, tools, machinery, equipment, appliances, shoring, scaffolding, false and form work, and personal property of the Contractor's employees from whatever cause arises. Any policy of insurance secured covering the Contractor or Subcontractors 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.

I. The Owner in good faith may adjust and settle a loss with the Contractor's insurance carrier.

J. The Owner and the Contractor waive all rights against each other and any of their Subcontractors, Sub-subcontractors, agents and employees for damages caused by fire or other perils to the extent of actual recovery of any insurance proceeds under any property insurance policy procured, pursuant to paragraph A of this Article 10, or other property insurance applicable to the Contractor's work.

K. Before commencement of its work, the Contractor shall obtain and pay for such insurance as may be required to comply with the indemnification and hold harmless provisions outlined under Article 12 of these General Conditions of the Contract for Construction.

L. Review and acknowledgment of the Certificate of Insurance by the Owner or the Architect shall not relieve or decrease the liability of the Contractor hereunder.

M. If the terms of policies expire, or the lives of the insurance companies terminate, before the Contract is completed or during the period of completed operations coverage, and the Contractor fails to maintain continuance of such insurance, the Owner is entitled to provide protection for itself, to pay premiums, and to charge the cost to the Contractor.

## **ARTICLE 11 REQUIRED BONDS FOR THE PROJECT**

A. Within ten (10) days of the award of the bid, the Contractor shall furnish a Performance Bond and Labor and Material Payment Bond meeting all statutory requirements of the State of New York.

B. All Surety companies are subject to the approval of the Owner and may be rejected by the Owner without cause.

C. 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.

D. Bonds shall be executed by a responsible surety licensed to do business in New York with an A.M. Best Rating of "A-" or better as to Policy Holder Ratings, and "VII" or better as to "Financial Size Category." Such bonds shall remain in effect for a period not less than two (2) years following final completion of the work by the Contractor.

E. Bonds shall further be executed by a surety that is currently listed on the U.S. Treasury Department Circular 570 entitled "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies," as amended.



F. The Performance Bond and the Labor and Material Payment Bond shall each be in an amount equal to 100% of the Contract Sum. The value of each bond shall be adjusted during the Project construction period to reflect changes in the Contract Sum.

G. Every Bond must display the Surety's Bond Number.

H. Each bond must be accompanied by an original Power of Attorney, giving the names of Attorneys-in-fact, and the extent of their bonding capacity.

I. A rider including the following provisions shall be attached to each Bond:

1. Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change, or other modification of the Contract Documents. Such addition, alteration, change, extension of time, or other modification of the Contract Documents, or a forbearance on the part of either the Owner or the Contractor to the other, shall not release the Surety of its obligations hereunder and notice to the Surety of such matters is hereby waived.
2. Surety further agrees that in event of any default by the Owner in the performance of the Owner's obligations to the Contractor under the Contract, the Contractor or Surety shall cause written notice of such default (specifying said default in detail) to be given to the Owner, and the Owner shall have thirty (30) days from time after receipt of such notice within which to cure such default, or such additional reasonable period of time as may be required if the nature of such default is such that it cannot be cured within thirty (30) days. Such Notice of Default shall be sent by certified or registered U.S. Mail, return receipt requested, first class postage prepaid, to Lender and the Owner.
3. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within three years after termination by the Owner of the Contractor's contract or within three years after final completion by the Contractor. In the event the Contractor files for bankruptcy, the commencement of the three year period shall not start to run until the bankruptcy proceeding is finalized or the Owner obtains relief from an automatic stay, whichever is later.

J. The Contractor shall deliver the required bonds to the Owner prior to beginning construction activity at the site, but no later than 10 days of issue date of Notice of Award of Contract. Said bonds shall be in the form set forth in the Project Manual. No work shall be performed by the Contractor until such bonds have been reviewed and approved.

K. The Owner may, in the Owner's sole discretion and without prior notice to the Contractor, inform surety of the progress of the Contractor's work and obtain consents as necessary to protect



the Owner's rights, interest, privileges and benefits under and pursuant to any bond issued in connection with the Contractor's work.

L. If the surety on any Bond furnished by Contractor is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of this Article, the Contractor shall within ten (10) days thereafter substitute another Performance and Payment Bond and surety, both of which must be acceptable to the Owner.

## **ARTICLE 12 INDEMNIFICATION**

A. The Contractor and its subcontractors shall indemnify and hold harmless (1) the Owner, its consultants, employees, officers and agents, (2) the Architect and its consultants, employees, officers and agents, and (3) the Construction Manager, its consultants, employees, officers and agents, and any of their respective employees, or agents from and against any and all claims, damages, losses, suits, obligations, fines, penalties, costs, charges and expenses, including but not limited to attorneys' fees, which may be imposed upon or incurred by or asserted against any of them by reason of any act or omission of such Contractor or any of its subcontractors or any person or firm directly or indirectly employed by such Contractor, for the act(s) and/or omission(s) of any Contractor or Subcontractor in connection with the work of the Project.

B. To the fullest extent permitted by law, the Contractor and its subcontractors shall indemnify and hold harmless (1) the Owner, its consultants, employees, officers and agents, (2) the Architect and its consultants, employees, officers and agents, and (3) the Construction Manager, its consultants, employees, officers and agents, and any of their respective employees, or agents from and against claims, damages, losses and expenses including but not limited to attorneys' fees, arising out of or resulting from performance of its 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 including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph B. The Contractor's indemnity obligations under this Paragraph B shall, but not by way of limitation, specifically include all claims and judgments which may be made against the Owner, the Architect, the Architect's consultants and agents and employees of any of them under any applicable statute, rule or regulation including the New York Statute, Occupational Safety and Hazardous Act, and the Federal Occupational Safety and Hazardous Act. In claims against any person or entity indemnified under this Paragraph B 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 this Paragraph B 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' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

C. The Contractor and its subcontractors shall indemnify and hold harmless (1) the Owner, its consultants, employees, officers and agents, (2) the Architect and its consultants, employees, officers and agents, and (3) the Construction Manager, its consultants, employees, officers and agents, and any of their respective employees or agents against any fines, penalties, judgments, or damages, including reasonable attorney's fees, imposed on or incurred by the parties indemnified hereunder which are incurred as a result of the Contractor's failure to give the notices required by Article 6(T) of these General Conditions of the Contract for Construction.

D. The Contractor and its subcontractors shall indemnify and hold harmless (1) the Owner, its consultants, employees, officers and agents, (2) the Architect and its consultants, employees, officers and agents, and (3) the Construction Manager, its consultants, employees, officers and agents, and any of their respective employees or agents against any actions, lawsuits or proceedings or claims of liens brought against each or any of them as a result of liens filed against the Contractor's project funds, including all the cost and expense of said liens, and including but not limited to attorneys' fees incurred by each or any of them.

E. The Contractor and its subcontractors shall indemnify and hold harmless (1) the Owner, its consultants, employees, officers and agents, (2) the Architect and its consultants, employees, officers and agents, and (3) the Construction Manager, its consultants, employees, officers and agents, and any of their respective employees or agents of and from any and all liability for violation of any laws and regulations applicable to the Contractor's work and shall defend any claims or actions which may be brought against the Owner as the result thereof. In the event that the Contractor shall fail to refuse to defend any such action, the Contractor shall be liable to the Owner for all costs of the Owner in defending such claim or action and all costs of the Owner, including attorney's fees, in recovering such defense costs from the Contractor.

F. The Contractor and its subcontractors shall indemnify and hold harmless (1) the Owner, its consultants, employees, officers and agents, (2) the Architect and its consultants, employees, officers and agents, and (3) the Construction Manager, its consultants, employees, officers and agents, and any of their respective employees or agents of and from any and all liability for claims made by third parties, including subcontractors, in connection with this Agreement and shall defend any claims or actions which may be brought against the Owner as the result thereof. In the event that the Contractor shall fail to refuse to defend any such action, the Contractor shall be liable to the Owner for all costs of the Owner in defending such claim or action and all costs of the Owner, including attorney's fees, in recovering such defense costs from the Contractor.

G. The indemnification obligations set forth herein shall become effective upon the Owner, Architect or Construction Manager's receipt of a claim for which the Contractor is required to provide indemnification to the Owner, Architect or Construction Manager. In the event the Owner, Architect or Construction Manager is required to bring an action to enforce the indemnification obligation, the Contractor shall be liable to the Owner, Architect, and/or Construction Manager for all costs associated with said action including attorneys' fees.



### ARTICLE 13 TIME FOR COMPLETION OF WORK

A. The date of commencement of the Contractor's work shall be as indicated in the agreement between the Contractor and the Owner. The date shall not be postponed or extended by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible to act. Time limits stated in the agreement between the Owner and the Contractor 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.

B. The Contractor shall not commence work on the site until two certified copies of all insurance policies and bonds required by Article 10 and Article 11 of these General Conditions of the Contract for Construction are provided to the Owner and accepted by the Owner. The date of commencement and/or completion of the Contractor's work shall not be changed by the effective date of such insurance. The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the acceptance of the insurance and bonds required by Article 10 and Article 11 of these General Conditions.

C. The Contractor shall proceed expeditiously with adequate forces and shall achieve substantial completion of its contract in accordance with the schedule set forth in its agreement. The Contractor shall cooperate with the Owner, Architect, Construction Manager, and other Contractors on the Project, making every reasonable effort to reduce the contract time.

D. 1. In the event the Owner determines that the performance of the Contractor's work, as of a milestone date, has not progressed or reached the level of completion required by its contract, the Owner shall have the right to order 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, and facilities and (3) other similar measures (hereinafter referred to collectively as "Extraordinary Measures"). Such Extraordinary Measures shall continue until the Contractor progresses its work in compliance with the stage of completion required by its agreement with the Owner. The Owner's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the construction schedule.

2. The Contractor shall not be entitled to an adjustment in its contract sum in connection with Extraordinary Measures ordered by the Owner under or pursuant to this Paragraph D.

3. The Owner may exercise the rights furnished the Owner under or pursuant to this Paragraph D as frequently as the Owner deems necessary to ensure that the Contractor's performance of its work will comply with any Milestone Date or completion date set forth in the Contractor's agreement with it.



4. The Owner reserves the right to withhold payment from the Contractor until such time as the Contractor submits a daily schedule showing work to be again on schedule with the Construction Schedule and/or until its work is being installed according to the project construction schedule, without additional cost to the Owner.

E. The Contractor shall achieve substantial completion of its work in accordance with the schedule for the work set forth in the project manual included as part of its agreement with the Owner. Milestone Dates are dates critical to the Owner's operations that establish when a part of the work is to commence or be complete. All Milestone Dates are of the essence and shall have the same meaning as Substantial Completion for the purpose of Liquidated Damages in this Article 13.

F. Substantial completion shall be achieved by the Contractor when the Contractor has completed ninety-eight (98%) percent of its work. Work remaining to be completed after substantial completion shall be limited to items which can ordinarily be completed within the period between the payment at the time of substantial completion and final payment.

G. 1. This project is to be physically completed in accordance with the time limits set forth in the agreement between the Owner and Contractor and as further set forth in the project manual and/or bidding documents. Liquidated damages will be assessed in the amount of One Thousand (\$1,000.00) Dollars for each and every calendar day after such time allowed for completion.

2. Contractor realizes that time is of the essence on this Contract and the completion date and milestone date for each work item in its agreement, a Milestone Date reflected on the project schedule, or the date of substantial completion of the Contractor's work shall be no later than the date indicated therein. In the event the Contractor fails to complete any work or substantially complete the work under this contract by said schedule date, the sum per calendar day for each date not met, as delineated above, will be subtracted from the payment due the Contractor (or, if the amount due Contractor as payment is insufficient, any deficiency shall be paid by the Contractor to the Owner), except in cases where the Contractor has applied for and been granted an extension of time in accordance with the provisions of this Article 13.

3. The said sum per calendar day shall constitute the Liquidated Damages incurred by the Owner for each day of delay beyond the agreed upon dates of Substantial Completion. Such Liquidated Damages shall be in addition to any other damages (other than by reason of delay) Owner may incur as a result of Contractor's breach of Contract. In the event that substantial completion of its work is not achieved in accordance with the project schedule, inspections will be performed once each week unless the Owner or the Architect determines, at their sole discretion, that additional inspections are not needed. All costs incurred by the Owner, Owner's Representative and the cost of additional inspections, at the rate of One Thousand Dollars (\$1,000) per inspection, will be subtracted from payment due the Contractor. If the amount due the Contractor for payment is insufficient, any deficiency shall be paid by the Contractor to the Owner.



H. 1. Within five (5) calendar days from the occurrence of same, the Contractor must apply in writing to the Owner, its Architect or Construction Manager for an extension of time to complete its work where it has been delayed as a result of: unforeseeable causes beyond the control and without the fault or negligence of the contractor, including acts of God, acts of the public enemy, acts of the federal or state government in either their sovereign or contractual capacities, fires, floods, epidemics, quarantine restrictions, priority or allocation orders duly issued by the federal government; freight embargoes; changes in the work to be performed by the Contractor. The Contractor may not apply for an extension of time for delays in acquisitions of materials other than by reason of freight embargoes. All other delays of the project, including but not limited to, Architect review and/or approval of shop drawings and/or submittals, requests for information, clarifications, samples, and change orders; Owner schedule; Architect certification of payment; payment by Owner of Contractor's Application for Payment; coordination amongst Contractors; unavailability of materials and/or equipment; surveying/testing; closeout, etc. are deemed to be foreseeable and, therefore shall not form the basis for a claim for an extension of time by the Contractor.

2. All claims for additional time shall be supported by documentation which demonstrates to the Architect and Construction Manager's satisfaction that the Critical path of the Work has been significantly altered by the delays to the activities in question, and that the schedule cannot be maintained by re-ordering other activities within the project at no cost. Upon receipt of the Contractor's request for an extension of time, the Owner will ascertain the facts and extent of the delay, and may, in its sole discretion, extend the time for completion of the Contractor's work when in its judgment such an extension is justified. The Owner's determination will be final and binding in any litigation commenced by the Contractor against the Owner which arises out of the Owner's denial of an extension of time to the Contractor. Any approval of an extension of the Contractor's time to complete its work shall be memorialized by written change order, signed by the Owner, Contractor, Architect and Construction Manager. Where the Owner determines that the Contractor will be granted an extension of time, such extension shall be computed in accordance with the following:

For each day of delay in the completion of its work, the Contractor shall be allowed one day of additional time to complete its contract. The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently; only the actual period of delay as determined by the Owner or its Architect may be allowed.

3. The Owner reserves the right to delay the commencement of Work or to otherwise modify the construction schedule set forth in the bid documents in order to comply with applicable State, Federal and/or local laws, regulations, or orders related to the COVID-19 pandemic. Contractor's remedies for any schedule modifications or delays caused directly or indirectly by the COVID-19 pandemic shall be an extension of time only, as further delineated in Article 13 (H)(4), below.



4. Notwithstanding anything to the contrary in the Contract Documents, an extension in the contract time, to the extent permitted under this Article 13(H), 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 acceleration; or (4) other similar claims (collective referred to herein as "delay(s)"), unless a delay is caused by the Owner's active interference with the Contractor's performance of the Work, and only to the extent such acts continue after the Contractor furnishes the Owner with three (3) days' written notice of such interference. In no event shall the Contractor be entitled to any compensation or recovery of any damages in connection with any delay, including, but not limited to, consequential damages, lost opportunity costs, impact damages, or other similar remuneration. The Owner's exercise of any of its rights or remedies under the Contract Documents (including, but not limited to, ordering changes in the Work, or directing suspension, rescheduling or correction of the Work), regardless of the extent or frequency of the Owner's exercise of such rights or remedies, shall not be construed as active interference with the Contractor's performance of the Work.

#### **ARTICLE 14 DEFICIENT AND INCOMPLETE WORK**

A. The Owner, through its Architect or Construction Manager, will have the authority to reject work performed by the Contractor which does not conform to the requirements of the drawings and/or specifications.

B. The Owner, through its Architect or Construction Manager, shall have the authority to require additional inspection or testing of the Contractor's work whether or not such work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the work to have performed additional inspection or testing of the work.

C. 1. If a portion of the Contractor's work is covered contrary to the Architect's request or to requirements specifically expressed in the drawings and/or specifications, upon request by the Architect or the Construction Manager, the Contractor shall uncover such work for the Architect's or any governmental authority's observation and be replaced at the Contractor's sole expense without change in the Contract Time or Contract Sum.

2. If a portion of the Contractor's work has been covered which the Architect or any governmental authority has not specifically requested to observe prior to its being covered, the Architect or any governmental authority may request to see such work and it shall be uncovered by the Contractor. If such work is in accordance with the drawings and/or specifications, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor, at its sole cost and expense, shall uncover and replace such work.



D. The Contractor shall promptly correct work rejected by the Owner, through its Architect or Construction Manager, or failing to conform to the requirements of its contract with the Owner, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear the all costs of correcting such rejected work, including but not limited to the cost of said additional testing and/or inspection, the cost of the Architect's services incurred in conjunction with such additional testing, and any cost, loss or damages to the Owner resulting from such actions. If prior to the date of Substantial Completion, the Contractor, a Sub-contractor or anyone for whom either is responsible uses or damages any portion of the Work or premises, including, without limitation, mechanical, electrical, plumbing and other building systems, machinery, equipment or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

E. If the Contractor (1) fails to correct work which is not in accordance with the requirements of its agreement with the Owner, or (2) fails to carry out its work in accordance with the requirements of its agreement with the Owner, or (3) fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, materials, or equipment so as to be able to complete the work within the contract time, or (4) fails to remove and discharge (within ten (10) days) any lien filed upon Owner's property by anyone claiming by, through, or under the Contractor, or (5) disregards the instructions of the Architect, Owner or Construction Manager, the Construction Manager, on behalf of the Owner may order the Contractor to stop its work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity. This right shall be in addition to, and not in restriction of, other rights the Owner may have pursuant to these General Conditions or at law.

F. 1. If the Contractor defaults or neglects to carry out its work in accordance with its agreement with the Owner and fails within a three (3) day period after receipt of written notice from the Construction Manager to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect, the Construction Manager and the Owner and such other consultants whose participation is deemed necessary by the Architect, for additional services and expenses made necessary by such default, neglect or failure. Such action by the Construction Manager, including the amounts to be charged to the Contractor as a result of such action are subject to the prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

2. Where the Contractor's default and/or neglect to carry out its work in accordance with its agreement with the Owner threatens the health, safety and/or welfare of the occupants of the school district's facilities and/or threatens the structural integrity and/or preservation of the school district's facilities, the Owner may proceed to carry out the Contractor's work upon twenty-four (24) hours notice of its intention to do so to the Contractor.



G. If the Owner prefers to accept work which is not in accordance with the terms and conditions of the agreement between the Owner and the Contractor, the Owner may, in its discretion, accept such work and reduce the Contractor's contract sum accordingly.

## **ARTICLE 15**

### **FINAL COMPLETION AND CLOSEOUT OF THE PROJECT**

A. 1. When advised by the Construction Manager that the Contractor's work is near substantial completion, the Architect shall visit the site to determine whether the Contractor's work is substantially complete. If the Architect's observations of the Contractor's work discloses any item which has not been performed in accordance with the requirements of the drawings and/or specifications and/or which has not been completed to the point indicated in Article 13 paragraph F of these General Conditions, the Contractor shall complete or correct such items upon receipt of notification from the Architect that a deficiency exists. The Architect shall not issue a certificate of substantial completion for the work of the Contractor until the work has been completed in accordance with Article 13(F). Upon completion of the work outlined by the Architect to it in accordance with this paragraph A, the Contractor shall advise the Architect of the need for an inspection of the work. If the Architect is required to inspect the Contractor's work more than twice, the Contractor shall be liable to the Owner for the services performed by the Architect as a result of additional inspections.

2. Upon determining that the Contractor's work has progressed to the point of Substantial Completion, the Architect shall prepare a punch list of the Contractor's work which shall include only minor items of work remaining to be performed by the Contractor to bring its work into compliance with the requirements of the drawings and/or specifications. The Contractor shall proceed promptly to complete and correct items on the punch list issued by the Architect and shall complete said items within thirty (30) days of its receipt of the punch list from the Architect. At the time of substantial completion, the Owner shall retain 200 percent of the value of the punch list items from the Contractor's remaining contract sum. The value of said remaining work shall be determined by the Architect. Upon completion of the work reflected in the final punch list, the Owner shall release the monies withheld pursuant to this paragraph to the Contractor.

3. The Architect's failure to include an item of deficiency on the punch list issued to the Contractor shall not relieve the contractor of its responsibility to perform its work in accordance with the drawings and/or specifications.

B. 1. If within three (3) years after the date of Substantial Completion of the Contractor's work or designated portion thereof, or after the date for commencement of warranties established pursuant to these General Conditions, or by terms of in applicable special warranty required by the agreement between the Owner and the Contractor, any of the Work is found to be not in



accordance with the requirements of said agreement, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This period of three (3) years shall be extended with respect to portions of the Contractor's work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of such work. The obligation set forth hereunder shall survive acceptance by the Owner of the Contractor's and/or termination of the Contractor's agreement with the Owner. The Owner shall give such notice within a reasonable period of time after discovery of the condition.

2. The Contractor shall, within a reasonable time after receipt of written notice thereof, but in no event no later than seventy-two (72) hours after receipt of such notice, commence to correct, repair, and make good any defects in its work.

3. The obligations of the Contractor pursuant to this paragraph shall cover any repairs to or replacement of work affected by the defective work.

4. In the case of any work performed in correcting defects pursuant to this paragraph, the guarantee periods specified herein shall begin anew from the date of acceptance by the Owner of such work.

C. Upon receipt of written notice from the Construction Manager that the Contractor's work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Contractor's work acceptable pursuant to the terms and conditions of its agreement with the Owner and the Contract fully performed and upon receipt of the closeout documentation required by the Contract Documents and elsewhere in the agreement between the Owner and the Contractor, the Architect will certify to the Owner that the Contractor is entitled to final payment on the project.

D. 1. Prior to receipt of final payment from the Owner, the Contractor shall provide to the Architect the close out documentation required by the Contract Documents.

2. The Contractor shall schedule a close out meeting with the Architect and the Construction Manager for the purpose of delivering the close out documents required pursuant to the Contract Documents and elsewhere in the agreement between the Owner and the Contractor.

E. If the Contractor's work is not accepted by the Owner after final inspection and additional time is required to complete items identified during the final inspection, the date starting the warranty periods described in the Contract Documents shall be set by the Architect at his discretion.

F. If the Architect is required to perform more than one final inspection because the Contractor's work fails to comply with the requirements of the contract, the amount of compensation paid to the Architect by the Owner for additional services shall be deducted from the final payment to the Contractor.



G. Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those claims previously made in writing in accordance with the terms of Article 18 hereof and identified by that payee as unsettled at the time of final Application for Payment.

H. Contractor shall submit all documentation identified in this section within ninety (90) days from the date of Substantial Completion. If the documentation has not been submitted, the Owner will obtain same through whatever means necessary. The Contractor shall solely be responsible for all expenses incurred by the Owner in securing such documentation.

## **ARTICLE 16**

### **RELEVANT STATUTORY PROVISIONS**

A. The Contractor shall at all times observe and comply with all Federal and State Laws and all Laws, Ordinances and Regulations of the Owner, in any manner affecting the work and all such orders decreed as exist at present and those which may be enacted later, by bodies or tribunals having jurisdiction or authority over the work, and the Contractor shall indemnify and save harmless the Owner and all his officers, agents, or servants against any claim or liability arising from, or based on, a violation of any such law, ordinances, regulation, order or decree, whether by himself or by his employee or agents.

B. The Contractor and each of its subcontractors shall comply with Prevailing Wage Rates as issued by the State of New York Department of Labor for the location and duration of this Project and shall comply with all requirements governing its payments to its employees as set forth in Labor Law, section 220 et seq of the New York State Labor Law, as amended.

C. The Contractor and each of its subcontractors shall post a notice at the beginning of the performance of every public work contract on each job site that includes the telephone number and addresses for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her particular job classification.

D. The Contractor specifically agrees, as required by Labor Law, Sections 220 and 220-d, as amended, that:

1. No laborer, workman or mechanic in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or any part of the work contemplated by the Contract, shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any one week, except in the emergencies set forth in the Labor Law.
2. The wages paid for a legal day's work shall not be less than the prevailing rate of wages as defined by law.



3. The minimum hourly rate of wages to be paid shall not be less than that stated in the Project Manual, and any re-determination of the prevailing rate of wages after the Contract is approved shall be deemed to be incorporated herein by reference as of the effective date of re-determination and shall form a part of this Contract. The Labor Law provides that the Contract may be forfeited and no sum paid for any work done thereunder on a second conviction for willfully paying less than:

- a. The stipulated wage scale as provided in Labor Law, Section 220, Sub division 3, as amended; or
- b. The stipulated minimum hourly wage scale as provided in Labor Law, Section 220-d, as amended.

E. The Contractor acknowledges that its work is governed by the provisions of Section 101 of the General Municipal Law of the State of New York.

F. The Contractor specifically agrees, as required by the provisions of the Labor Law of New York, Section 220-E, as amended that:

- 1. In the hiring of employees for the performance of this contract or any sub-contractor hereunder, no contractor, sub-contractor, nor any person acting on behalf of such contractor or sub-contractor shall by reason of race, creed, color or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates.
- 2. No contractor, sub-contractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, color, creed, sex or national origin.
- 3. There may be deducted from the amount payable to the Contractor a penalty of fifty dollars for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the Contract.
- 4. This Contract may be canceled or terminated by the Owner and all monies due or to become due hereunder may be forfeited for a second or any subsequent violation of the terms or conditions of this section of the Contract.

The aforesaid provisions of this section covering every Contract for or on behalf of the Owner, the State or a municipality for the manufacture, sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.

G. The successful Contractor shall conform to the guidelines spelled out in the County's Affirmative Action Program, if any.



H. The Contractor shall comply with all of the provisions of the Immigration Reform and Control Act of 1986 and regulations promulgated pursuant thereto and shall require its subcontractors to comply with same. The Contractor shall and does hereby agree to fully indemnify, protect, defend, and hold harmless the Owner, Owner's agents and employees from and against any penalties, fees, costs, liabilities, suits, claims, or expenses of any kind or nature, including reasonable attorney's fees, arising out of or resulting from any violation or alleged violation of the provisions of said laws in connection with the work performed hereunder.

I. This Contract shall be void if the Contractor fails to install, maintain, and effectively operate appliances and methods for the elimination of harmful dust when a harmful dust shall have been identified in accordance with Section 222-a of the Labor Law of the State of New York.

J. The Contractor shall insure that absolutely no asbestos containing material is used in conjunction with the performance of its work. The Contractor bears the sole responsibility to provide assurances that no asbestos containing material is built into the construction, or that any equipment used in the construction contains any asbestos containing material. If asbestos containing material is found, at any time during or after the construction is completed, it shall be the responsibility of the Contractor who installed said material to remove it and replace it with new non-asbestos containing material, as per federal, state and local mandates.

K. Large and small asbestos abatement projects as defined by 12 N.Y.C.R.R. 56 shall not be performed while the building is occupied. As referenced in this section, the term "building" shall mean a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion, and ventilation systems must be physically separated and sealed at the isolation barrier. 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 windows is provided. Work must be scheduled so that classes are not disrupted by noise or visual distraction.

L. Surfaces that will be disturbed by reconstruction must have a determination made as to the presence of lead. 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.

M. No smoking is allowed anywhere on school property per New York State and County law. Violators are subject to a \$1,000 fine and/or banishment from the property.

N. Applicable codes and standards for material furnished and work installed shall include all state laws, local ordinances, requirements of governmental agencies having jurisdiction, and applicable requirements of following codes and standards, including but not limited to:



1. New York State Uniform Fire Prevention and Building Code, and amendments thereto.
2. New York State Energy Conservation Construction Code.
3. State Education Department Manual of Planning Standards.
4. New York State Department of Transportation, Office of Engineering, Standard Specification, Construction and Materials, latest edition.
5. Life Safety Code - NFPA.

O. Wherever in the specifications reference is made to ANSI or ASTM Standards, Federal Specifications, Consumer Product Standards, or similar recognized standards, the latest edition of the respective publishing agency in effect at the date of "Bid Issuance" shall be accepted as establishing the technical requirements for which compliance is required.

P. The Owner shall be entitled to request of Contractor or its successor in interest adequate assurance of future performance in accordance with the terms and conditions of its agreement in the event (1) an order for relief is entered on behalf of the Contractor pursuant to Title 11 of the United States Code, (2) any other similar order is entered under any other debtor relief laws, (3) the Contractor makes a general assignment for the benefit of its creditors, (4) a receiver is appointed for the benefit of its creditors, or (5) a receiver is appointed on account of its insolvency. Failure to comply with such request within ten (10) days of delivery of the request shall entitle the Owner to terminate the Contract in accordance with Article 17 hereof. In all events, pending receipt of adequate assurance of performance and actual performance in accordance therewith, the Owner shall be entitled to proceed with the Contractor's work with its own forces or with other contractors on a time and material or other appropriate basis, the cost of which will be back charged against the Contractor.

Q. The Contractor shall maintain policies of employment as follows:

1. The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.
2. The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

## ARTICLE 17



## TERMINATION OR SUSPENSION

- A. 1. The Owner may terminate the Contractor's agreement in the event the Contractor:
- a. refuses or fails to supply sufficient skilled workers or suitable materials or equipment to complete the Work in a diligent, efficient, timely, workmanlike, skillful, and careful manner;
  - b. refuses or fails to correct deficient work performed by it;
  - c. fails to make prompt payments to subcontractors for labor, materials, and/or equipment in accordance with the respective agreements between the Contractor and the Subcontractors;
  - d. disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction;
  - e. disregards the instructions of the Architect, Construction Manager or the Owner (when such instructions are based on the requirements of the Contract Documents);
  - f. is adjudged a bankrupt or insolvent, or makes a general assignment for the benefit of Contractor's creditors, or a trustee or receiver is appointed for Contractor or for any of its property, or files a petition to take advantage of any debtor's act or to reorganize under bankruptcy or similar laws; or
  - g. breaches any warranty made by the Contractor under or pursuant to the Contract Documents.
  - h. fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract Documents; or
  - i. fails after commencement of the Work to proceed continuously with the construction and completion of the Work for more than ten (10) days, except as permitted under the Contract Documents.
  - j. fails to keep the Project free from strikes, work stoppages, slowdowns, lockouts or other disruptive activity;
  - k. or otherwise does not fully comply with the Contract Documents.
2. When any of the above reasons exists, may without prejudice to any other rights or remedies of the Owner, terminate employment of the Contractor upon three (3) days written notice and may, subject to any prior rights of the surety:



- a. take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- b. take possession of materials stored off site by the Contractor;
- c. take assignments of the Contractor's subcontractors in accordance with these General Conditions;
- d. finish the Work by whatever reasonable method the Owner may deem expedient.

3. When the Owner terminates the Contract for one of the reasons stated in Subparagraph 1 hereof, the Contractor shall not be entitled to receive further payment until the completion of the Contractor's work. If the Owner's costs to complete the Contractor's work, including the expenses incurred by the Owner in connection with the services of the Architect, the Construction Manager and/or other consultants, exceed the contract balance remaining on the Contractor's contract, the Contractor shall be liable to the Owner for such excess costs. This provision shall survive termination of the Contractor's agreement with the Owner.

B. 1. In addition to the Owner's right to carry out the work of the Contractor pursuant to its agreement with the Contractor, the Owner may at any time, at will and without cause, terminate any part of the Contractor's work or all of the Contractor's remaining work for any reason whatsoever by giving three (3) days' written notice to Contractor, specifying the portion of the Contractor's work to be terminated and the effective date of termination.

2. Upon receipt of a notice of termination for convenience, the Contractor shall immediately, in accordance with instructions from the Owner, proceed with performance of the following duties regardless of delay in determining or adjusting amounts due under this Paragraph:

- a. cease operation as specified in the notice;
- b. place no further orders and enter into no further subcontracts for materials, labor, services or facilities except as necessary to complete continued portions of the Contract;
- c. terminate all subcontracts and orders to the extent they relate to the Work terminated;
- d. proceed to complete the performance of the remaining work on its contract which has not been so terminated; and
- e. take actions that may be necessary, or that the Owner may direct, for the protection and preservation of the terminated Work.



3. The Contractor shall continue to prosecute that portion of its work which has not been terminated by the Owner pursuant to this paragraph. If the Contractor's work is so terminated, the Owner shall not be liable to the Contractor by reason of such termination except that the Contractor shall be entitled to payment for the work it has properly executed in accordance with its agreement and prior to the effective date of termination (the basis for such payment shall be as provided in the Contract) and for costs directly related to work thereafter performed by Contractor in terminating such Work, provided such work is authorized in advance by the Architect and the Owner. No payment shall be made by Owner, however, to the extent that such work is, was, or could have been terminated under the Contractor's agreement with the Owner.

4. In case of a termination pursuant to this paragraph B, the Owner will issue a Construction Change Directive or authorize a Change Order, making any required adjustment to the Date of Substantial Completion and/or the sum of contract monies remaining to be paid to the Contractor. The Owner shall be credited for (1) payments previously made to the Contractor for the terminated portion of the Work, (2) claims which the Owner has against the Contractor under the Contract and (3) the value of the materials, supplies, equipment or other items that are to be disposed of by the Contractor that are part of the Contract Sum; multiplied by 15% representing the Contractor's overhead and profit.

5. For the remaining portions of the Contractor's work which have not been terminated pursuant to this paragraph B, the terms and conditions of the Contractor's agreement with the Owner shall remain in full force and effect.

6. Upon termination of the Contractor's work or a portion of the Contractor's work pursuant to this paragraph B, the Contractor shall recover as its sole remedy, payment for work which it has properly performed in connection with the terminated portion of the Work prior to the effective date of termination and for items properly and timely fabricated off the Project site, delivered and stored in accordance with the Owner's instructions. The Contractor hereby waives and forfeits all other claims for payment and damages, including, without limitation, overhead and profit related to work terminated by the Owner pursuant to this paragraph B.

C. 1. In addition to Owner's right to suspend, delay, or interrupt Contractor from proceeding with any portion of its work pursuant to the terms and conditions of its agreement with the Owner, the Owner may at any time, at will and without cause suspend, delay, or interrupt any part of the Contractor's work or all work for any reason whatsoever for such period of time as the Owner may determine by giving three (3) days' prior written notice to Contractor, specifying that portion of the Contractor's work which is to be suspended, delayed, or interrupted, and the effective date of such suspension, delay, or interruption, as the case may be.

2. The Contractor shall continue to prosecute that portion of its work which has not been suspended, delayed, or interrupted, and shall properly protect and secure the portion of its work so suspended, delayed or interrupted.



3. The Owner shall incur no liability to Contractor by reason of such suspension, delay, or interruption except that Contractor may request an extension of its time to complete its work in accordance with Article 13 hereof.

D. The Contractor agrees and acknowledges that payments for the work have been obtained through obligations or bonds which have been sold after public referendum. In the event the work is suspended or canceled as a result of the order of any court, agency, department entity or individual having jurisdiction, or in the event the work is suspended or canceled due to the fact that a court, agency, department, entity or individual having jurisdiction has issued an order, the result of which is that the aforesaid obligations or bonds are no longer available for payment for the work, the Contractor expressly agrees that it shall be solely entitled to payment for work accomplished until a notice of suspension or cancellation is served upon it. The Contractor expressly waives any and all rights to institute an action, claim, cause of action or similar for any damages it may suffer as a result of the suspension or cancellation of the Work and/or its contract pursuant to this section.

## ARTICLE 18 CLAIMS AND DISPUTES

A. Definition. A "Claim" is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of 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.

B. Time Limits on Claims. Claims by the Contractor must be made within thirty (30) days after occurrence of the event giving rise to such Claim, or within thirty (30) days after the claimant first recognizes the condition giving rise to the Claim, whichever is earlier. Claims must be made by written notice. An additional Claim made after the initial Claim has been decided by the Owner will not be considered unless submitted in a timely manner. Failure of the Contractor to give timely notice of claim shall constitute waiver of the claim. Claims must be made by written notice to the Construction Manager, Architect and Owner. The responsibility to substantiate Claims shall rest with the Contractor.

C. Pending final resolution of a Claim, unless otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

D. Claims for Concealed or Unknown Conditions. If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which 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, then notice by the Contractor shall be given to the Owner and Architect promptly before conditions are disturbed and in no event later than five (5) days after first observance of the conditions; and,



(3) in the case of a condition at the site which involves a hazardous or toxic substance, as those terms are defined by OSHA or AHERA, notice to the Owner, the Construction Manager and the Architect shall be given immediately upon discovery of such hazardous or toxic substance. The Architect, and/or Construction Manager will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall so notify the Contractor in writing, stating the reasons.

E. Claims for Additional Cost. If the Contractor wishes to make Claim for an increase in the Contract Sum as a result of a Change in the Work pursuant to Article 8 of these General Conditions, written notice as provided in this Article 18 shall be given before proceeding to execute the Work.

F. Claims for Additional Time. If the Contractor wishes to make Claim for an increase in the Contract Time, the Contractor shall comply with the requirements set forth in Article 13.

G. Nothing contained in the Contract Documents shall relieve a Contractor from compliance with any statutory requirement, including, but not limited to those contained in Education Law Section 3813.

## **ARTICLE 19 MISCELLANEOUS PROVISIONS**

A. The agreement between the Owner and the Contractor shall be governed by the law of the place where the project is located; venue to be in the County in which the project is located.

B. Historical lack of enforcement of any law, local or otherwise, shall not constitute a waiver of Contractor's responsibility for compliance with such law in a manner consistent with its agreement with the Owner unless and until the Contractor has received written consent for the waiver of such compliance from the Owner and the Agency responsible for the enforcement of such law.

C. All notices to be given hereunder shall be in writing and may be given, served, or made (1) by depositing the same for first class mail delivery in the United States mail addressed to the authorized representative of the party to be notified; (2) by depositing the same in the United States mail addressed to the authorized representative of the party to be notified, postpaid and registered or certified with return receipt requested; (3) by depositing the same for overnight delivery (prepaid by or billed to the party giving notice) with the United States Postal Service or other nationally recognized overnight delivery service addressed to the authorized representative of the party to be notified; or (4) by delivering the same in person to the said authorized representative of such party. Notice deposited in the mail by certified mail or overnight delivery in accordance with the provisions hereof shall be effective from and after the



fourth (4th) day next following the date postmarked on the envelope containing such notice, or when actually received, whichever is earlier. All notices to be given to the parties hereto shall be sent to or made at the addresses set forth hereinbelow. By giving the other parties at least seven (7) days' written notice thereof, the parties hereto shall have the right to change their respective addresses and specify as their respective addresses for the purposes hereof any other address in the United States of America.

D. Except as expressly provided in the agreement between the Owner and the Contractor, duties and obligations imposed by such agreement and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law, or in equity or by other agreement, and such rights and remedies shall survive acceptance of the Contractor's work and/or any other termination of the Contractor's agreement with the Owner.

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

F. The headings denoting the separately numbered Articles of these General Conditions are specifically set forth for reference purposes only and are not in any way to be deemed explanatory of or limiting of the contents of any paragraph or subparagraph. Furthermore, said headings are not to be deemed part of this Agreement for purposes of interpretation, litigation or as defining or limiting the rights or obligations of the parties.

G. In case any provision of this Agreement should be held to be contrary to, or invalid, under the law of any country, state or other jurisdiction, such illegality or invalidity, shall not affect in any way, any other provisions hereof, all of which shall continue, nevertheless, in full force and effect in any country, state or jurisdiction in which such provision is legal and valid.

H. The rights stated in these General Conditions and the documents which form the agreement between the Owner and the Contractor are cumulative and not in limitation of any rights of the Owner at law or in equity.

I. The Owner shall not be responsible for damages or for loss of anticipated profits 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 its agreement with the Contractor.

J. The Owner shall not be liable to the Contractor for punitive damages on account of any its termination of the Contractor or any other alleged breach of the agreement between it and the Contractor and the Contractor hereby expressly waives its right to claim such damages against the Owner.



K. 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.

L. Upon determination by legal means (e.g. court action, etc.) that termination of Contractor pursuant to Article 17.A.1 was wrongful, such termination will be deemed converted to a termination for convenience pursuant to Article 17.B.1 and Contractor's remedy for such termination shall be limited to the recovery of the payments permitted for termination for convenience as set forth in Article 17.B.1.

M. As between the Owner and Contractor:

1. Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;
2. Between Substantial Completion and Final Certificate for Payment. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the final Certificate for Payment; and
3. After Final Certificate for Payment. As to acts or failures to act occurring after the relevant date of issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to warranties provided in accordance with its agreement with the Owner, the date of any correction of work performed by the Contractor or failure to correct its work, or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

N. 1. The Owner may occupy or use any completed or partially completed portion of the Contractor's work at any stage when such occupancy is authorized by public authorities having jurisdiction over the project.

2. Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of the Contractor's work, nor does it waive the Owner's right to liquidated damages. Further such occupancy alone shall not determine when substantial completion and performance has been reached.

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



to determine and record the condition of the Contractor's work, and in order to prepare a complete punchlist of omissions of materials, faulty workmanship, or any items to be repaired, torn out or replaced.

O. The Contractor agrees not to assign, transfer, convey or sublet or otherwise dispose of this Contract or his right, title and interest therein or his power to execute such Contract, to any other person, firm or corporation without the previous consent in writing of the Owner.

P. The Owner is a tax exempt organization and will take title to materials used in the Project in order to permit tax exemption.

Q. The Owner will furnish a certificate with the Owner's Tax Exemption Number to the Contractor for use in purchasing tangible personal property required for the Project.

R. This exemption shall not apply to machinery, equipment, tools, and other items purchased, leased, rented, or otherwise acquired for the Contractor's use even though the machinery, equipment, tools or other items are used either in part or entirely on the Work. This exemption shall apply only to materials fully incorporated into the Work of the Contract as accepted and approved by the Architect.

S. The Contractor shall, upon request by the Owner, furnish a bill of sale or other instrument indicating the quantities and types of materials purchased directly by the Contractor or subcontractor for incorporation into the Work. Upon delivery of the materials to the site, the Contractor shall mark or otherwise identify the materials to be incorporated into the Work. This exemption shall apply only to materials so identified and accepted.

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***END OF GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION***

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PREVAILING WAGE RATES  
Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

**H2M**

**IN ACCORDANCE WITH ARTICLE 8, SECTION 220 (3-a) OF THE NEW YORK STATE LABOR LAW, THE FOLLOWING LINK REPRESENTS THE MOST CURRENT PREVAILING WAGE RATE SCHEDULES AT THE TIME OF BIDDING, ISSUED BY THE NEW YORK STATE DEPARTMENT OF LABOR SPECIFICALLY REQUESTED FOR THIS PROJECT:**

PRC# 2021003379

<https://apps.labor.ny.gov/wpp/publicViewProject.do?method=showIt&id=1512003>

**CONTRACTOR IS TO OBTAIN THE PREVAILING WAGE RATES GENERATED FOR THIS PROJECT AT THE NEW YORK STATE DEPARTMENT OF LABOR WEBSITE.**

- ASSEMBLY BILL NUMBER 1839
- NOTICES REGARDING WAGE RATE UPDATES
- WAGE RATE SCHEDULE
- LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE AWARDED PUBLIC WORK

Irvington Union Free School District  
**Board of Education**  
6 Dows Lane, Irvington, New York 10533  
Irvington, New York 10533



NAME OF CONTRACTOR		OR SUBCONTRACTOR		ADDRESS		OMB No.: 1235-0008 Expires: 02/28/2018	
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PAYROLL NO.		FOR WEEK ENDING		PROJECT AND LOCATION		PROJECT OR CONTRACT NO.	
-------------	--	-----------------	--	----------------------	--	-------------------------	--

(1)  NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER	(2)  NO. OF WITHHOLDING EXEMPTIONS	(3)  WORK CLASSIFICATION	OT OR ST.	(4) DAY AND DATE							(5)  TOTAL HOURS	(6)  RATE OF PAY	(7)  GROSS AMOUNT EARNED	(8)  DEDUCTIONS						(9)  NET WAGES PAID FOR WEEK
				HOURS WORKED EACH DAY										FICA	WITH- HOLDING TAX			OTHER	TOTAL DEDUCTIONS	
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While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.



Date \_\_\_\_\_

I, \_\_\_\_\_  
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by \_\_\_\_\_ on the \_\_\_\_\_  
(Contractor or Subcontractor)  
\_\_\_\_\_ ; that during the payroll period commencing on the \_\_\_\_\_  
(Building or Work)  
\_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, and ending the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_,  
all persons employed on said project have been paid the full weekly wages earned, that no rebates have  
been or will be made either directly or indirectly to or on behalf of said  
\_\_\_\_\_ from the full  
(Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly  
from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part  
3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948,  
63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

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

(2) That any payrolls otherwise under this contract required to be submitted for the above period are  
correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the  
applicable wage rates contained in any wage determination incorporated into the contract; that the classifications  
set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship  
program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and  
Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered  
with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:  
(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- in addition to the basic hourly wage rates paid to each laborer or mechanic listed in  
the above referenced payroll, payments of fringe benefits as listed in the contract  
have been or will be made to appropriate programs for the benefit of such employees,  
except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- Each laborer or mechanic listed in the above referenced payroll has been paid,  
as indicated on the payroll, an amount not less than the sum of the applicable  
basic hourly wage rate plus the amount of the required fringe benefits as listed  
in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR  
SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE  
31 OF THE UNITED STATES CODE.



# DRAFT AIA Document A310™ - 2010

## Bid Bond

### CONTRACTOR:

(Name, legal status and address)

« »  
« »

### SURETY:

(Name, legal status and principal place of business)

« »  
« »

### OWNER:

(Name, legal status and address)

« »  
« »

BOND AMOUNT: \$ « »

### PROJECT:

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

«PWA»  
« »  
« »

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

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

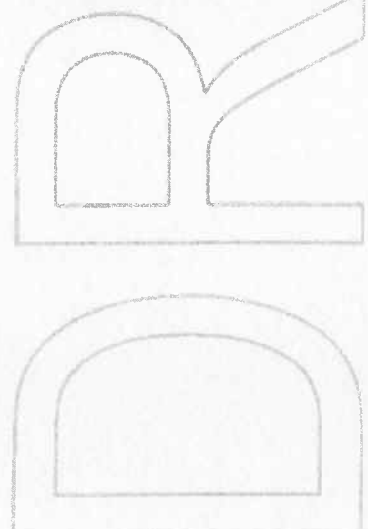
When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement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

### ADDITIONS AND DELETIONS:

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

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

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



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

(Witness)

(Witness)

« »

(Contractor as Principal)

(Seal)

« »

(Title)

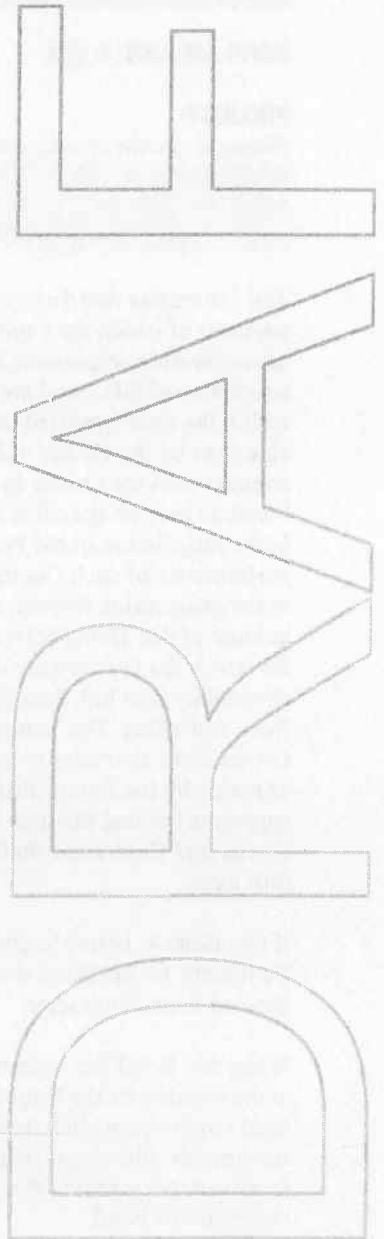
« »

(Surety)

(Seal)

« »

(Title)





# DRAFT AIA® Document A312™ - 2010

## Performance Bond

**CONTRACTOR:**

(Name, legal status and address)

« »  
« »

**SURETY:**

(Name, legal status and principal  
place of business)

« »  
« »

**OWNER:**

(Name, legal status and address)

« »  
« »

**CONSTRUCTION CONTRACT**

Date: « »

Amount: \$ « »

Description:

(Name and location)

«PWA»

« »

**BOND**

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond: ☐ None ☐ See Section 16

**CONTRACTOR AS PRINCIPAL**

Company: (Corporate Seal)

**SURETY**

Company: (Corporate Seal)

Signature:

Name and « »

Title:

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

Signature:

Name and « »

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

**AGENT or BROKER:**

« »  
« »  
« »

**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

« »  
« »  
« »  
« »  
« »  
« »

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

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

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

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**§ 1** The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

**§ 2** If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

**§ 3** If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

**§ 4** Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

**§ 5** When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

**§ 5.1** Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

**§ 5.2** Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

**§ 5.3** Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

**§ 5.4** Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

**§ 6** If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.



**§ 7** If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

**§ 8** If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

**§ 9** The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

**§ 10** The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

**§ 11** Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

**§ 12** Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

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

#### **§ 14 Definitions**

**§ 14.1 Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

**§ 14.2 Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

**§ 14.3 Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

**§ 14.4 Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

**§ 14.5 Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.



§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

**CONTRACTOR AS PRINCIPAL**

Company:

(Corporate Seal)

**SURETY**

Company:

(Corporate Seal)

Signature:

Name and Title:

« »« »

Address:

« »

Signature:

Name and Title:

« »« »

Address:

« »



# DRAFT AIA Document A312™ - 2010

## Payment Bond

### CONTRACTOR:

(Name, legal status and address)

« »  
« »

### SURETY:

(Name, legal status and principal place of business)

« »  
« »

### OWNER:

(Name, legal status and address)

« »  
« »

### CONSTRUCTION CONTRACT

Date: « »

Amount: \$ « »

Description:

(Name and location)

«PWA»

« »

### BOND

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond:

« »

None

« »

See Section 18

### CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

### SURETY

Company: (Corporate Seal)

Signature:

Name and « »

Title:

Signature:

Name and « »

Title:

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

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

« »  
« »  
« »

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

« »  
« »  
« »  
« »  
« »  
« »

### ADDITIONS AND DELETIONS:

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

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

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

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



§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.



**§ 10** The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

**§ 11** The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

**§ 12** No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

**§ 13** Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

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

**§ 15** Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

#### **§ 16 Definitions**

**§ 16.1 Claim.** A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

**§ 16.2 Claimant.** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

**§ 16.3 Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.



§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

« »

*(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)*

**CONTRACTOR AS PRINCIPAL**

Company: \_\_\_\_\_ (Corporate Seal)

Signature: \_\_\_\_\_

Name and Title: « »« »

Address: « »

**SURETY**

Company: \_\_\_\_\_ (Corporate Seal)

Signature: \_\_\_\_\_

Name and Title: « »« »

Address: « »



Application and Certificate for Payment

TO OWNER: PROJECT: PWA APPLICATION NO: 001 Distribution to: OWNER: ARCHITECT: CONTRACTOR: FIELD: FROM CONTRACTOR: VIA ARCHITECT: PERIOD TO: CONTRACT FOR: General Construction CONTRACT DATE: PROJECT NOS:

CONTRACTOR'S APPLICATION FOR PAYMENT

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

- 1. ORIGINAL CONTRACT SUM.....\$0.00
- 2. NET CHANGE BY CHANGE ORDERS.....\$0.00
- 3. CONTRACT SUM TO DATE (Line 1 ± 2).....\$0.00
- 4. TOTAL COMPLETED & STORED TO DATE (Column G on G703).....\$0.00
- 5. RETAINAGE:

- a. 0 % of Completed Work (Column D + E on G703): \$0.00 = \$0.00
- b. 0 % of Stored Material (Column F on G703): \$0.00 = \$0.00

Total Retainage (Lines 5a + 5b or Total in Column I of G703).....\$0.00

6. TOTAL EARNED LESS RETAINAGE.....\$0.00

(Line 4 Less Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT.....\$0.00

(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE.....\$0.00

9. BALANCE TO FINISH, INCLUDING RETAINAGE

(Line 3 less Line 6)

\$0.00

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

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

CONTRACTOR:

By:

Date:

State of:

County of:

Subscribed and sworn to before me this day of

Notary Public:

My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

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

AMOUNT CERTIFIED.....\$0.00

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

ARCHITECT:

By:

Date:

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



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

In tabulations below, amounts are in US dollars.

Use Column 1 on Contracts where variable retainage for line items may apply.

[illegible]



# DRAFT AIA Document G704™ - 2000

## Certificate of Substantial Completion

**PROJECT:**  
(Name and address)  
PWA

**PROJECT NUMBER:** /  
**CONTRACT FOR:** General Construction  
**CONTRACT DATE:**

**TO OWNER:**  
(Name and address)

**TO CONTRACTOR:**  
(Name and address)

**OWNER:** ☐  
**ARCHITECT:** ☐  
**CONTRACTOR:** ☐  
**FIELD:** ☐  
**OTHER:** ☐

### PROJECT OR PORTION OF THE PROJECT DESIGNATED FOR PARTIAL OCCUPANCY OR USE SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found, to the Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated above is the date of issuance established by this Certificate, which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

#### Warranty

#### Date of Commencement

\_\_\_\_\_  
ARCHITECT

\_\_\_\_\_  
BY

\_\_\_\_\_  
DATE OF ISSUANCE

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment.

**Cost estimate of Work that is incomplete or defective:** \$0.00

The Contractor will complete or correct the Work on the list of items attached hereto within Zero (0) days from the above date of Substantial Completion.

\_\_\_\_\_  
CONTRACTOR

\_\_\_\_\_  
BY

\_\_\_\_\_  
DATE

The Owner accepts the Work or designated portion as substantially complete and will assume full possession at \_\_\_\_\_ (time) on \_\_\_\_\_ (date).

\_\_\_\_\_  
OWNER

\_\_\_\_\_  
BY

\_\_\_\_\_  
DATE

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

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



# DRAFT AIA Document G706™ - 1994

## Contractor's Affidavit of Payment of Debts and Claims

PROJECT: (Name and address)  
PWA

ARCHITECT'S PROJECT NUMBER:

TO OWNER: (Name and address)

CONTRACT FOR: General Construction

CONTRACT DATED:

OWNER: ☐

ARCHITECT: ☐

CONTRACTOR: ☐

SURETY: ☐

OTHER: ☐

STATE OF:  
COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

### EXCEPTIONS:

#### SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose

Indicate Attachment ☐ Yes ☒ No

The following supporting documents should be attached hereto if required by the Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
3. Contractor's Affidavit of Release of Liens (AIA Document G706A).

CONTRACTOR: (Name and address)

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:



DRAFT

**AIA® Document G706A™ - 1994**

**Contractor's Affidavit of Release of Liens**

**PROJECT:** *(Name and address)*

PWA

**TO OWNER:** *(Name and address)*

**ARCHITECT'S PROJECT  
NUMBER:**

**CONTRACT FOR:** General  
Construction

**CONTRACT DATED:**

**OWNER:** ☐

**ARCHITECT:** ☐

**CONTRACTOR:** ☐

**SURETY:** ☐

**OTHER:** ☐

**STATE OF:**  
**COUNTY OF:**

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

**EXCEPTIONS:**

**SUPPORTING DOCUMENTS ATTACHED HERETO:**

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

**CONTRACTOR:** *(Name and address)*

**BY:**

*(Signature of authorized  
representative)*

*(Printed name and title)*

Subscribed and sworn to before me on this date:

**Notary Public:**

**My Commission Expires:**



# DRAFT AIA Document G707™ - 1994

## Consent Of Surety to Final Payment

**PROJECT:** *(Name and address)*

PWA

**ARCHITECT'S PROJECT NUMBER:**

**CONTRACT FOR:** General Construction

**TO OWNER:** *(Name and address)*

**CONTRACT DATED:**

OWNER: ☐

ARCHITECT: ☐

CONTRACTOR: ☐

SURETY: ☐

OTHER: ☐

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the  
*(Insert name and address of Surety)*

on bond of

*(Insert name and address of Contractor)*

, SURETY,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the  
Surety of any of its obligations to  
*(Insert name and address of Owner)*

, CONTRACTOR,

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:  
*(Insert in writing the month followed by the numeric date and year.)*

*(Surety)*

*(Signature of authorized representative)*

Attest:

*(Seal):*

*(Printed name and title)*



## SUMMARY OF WORK

**H2M**

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

### PART 1 - GENERAL

#### 1.01 BRIEF PURPOSE OF PROJECT / GENERAL

- A. The purpose of the project is to renovate the existing library, computer lab and classroom on the first floor to create the new Innovation Suite and conversion of existing classrooms to (2) service rooms on the garden level (basement level)..
- B. This Section provides an abbreviated summary of the work for the Construction Contract associated with the Owner's program to construct the project.
- C. In the event that any of the provisions in the technical specifications conflicts with the general conditions, the provision more favorable to the owner, as determined by the owner in its sole discretion, shall govern.

#### 1.02 NOMENCLATURE

- A. Where the terms "Engineer/Architect", "Architect/Engineer", "Engineer", or "Architect" are used throughout these Contract Documents, they shall mean the firm of H2M architects + engineers as may be abbreviated by H2M or H2M Group.
- B. Where the terms "Owner" or "Owner's Construction Representative" are used, they will be defined as a person selected by the Owner, or the actual Owner, Irvington Union Free School District.

#### 1.03 ABBREVIATED SUMMARY OF CONTRACT G WORK

- A. Furnish all labor, equipment, materials, tools, means, methods, and incidentals necessary to complete the Work as required by the Contract Documents for this Construction Contract. Each contractor shall coordinate, through the Owner/Architect, the work of their contract with the work by others.
- B. This following abbreviated summary is provided in order to briefly describe the work covered by the Contract Documents for this Construction Contract. It is not all inclusive of the work under the Contract.
- C. The work includes, but is not limited to, the following:
  - 1. The project scope involves renovation of the existing library, computer lab and classroom on the first floor to create the new Innovation Suite and conversion of existing classrooms to (2) service rooms on the garden level (basement level).
  - 2. Asbestos Abatement work as indicated within the Contract Documents.
  - 3. Project closeout submittals.
- D. All other work shown and specified within the Contract Documents for Contract G.

#### 1.04 PARTIAL LISTING OF SPECIFIC CONTRACT REQUIREMENTS

- A. The Contract Documents detail the work included in the Contract. Related requirements and conditions covered by the Contract Documents include, but are not limited to, the following:
  - 1. The contractor shall adhere to all New York State Education Department requirements, including but not limited to NYCRR, Title 8, Chapter 2, Part 155.5 - Uniform Safety Standards for School Construction and Maintenance
  - 2. Local laws and ordinances of Westchester County and New York State.



#### 1.05 PARTIAL LISTING OF OVERALL CONTRACT REQUIREMENTS

- A. The Contract Documents detail the work included in the Contract. Related requirements and conditions covered by the Contract Documents include, but is not limited to, the following:
  - 1. Debris removal and daily and final cleaning up.
  - 2. Site utilization and management so as not to disrupt the Owner's ability to operate the existing facilities in a safe and efficient manner.
  - 3. Maintain the Owner's ability to operate the facility at all times during the construction period.
  - 4. Facilities to be used during the contract period that are to be used by the Owner or his representatives and others involved with constructing the project.
  - 5. Product and equipment storage and handling requirements.
  - 6. Starting and adjusting of the equipment and systems required under the project.
  - 7. Site safety in accordance with all applicable federal, state, and local regulations.
  - 8. Project submittals, testing services, work plans, schedules, shop drawings, closeout procedures and documents, manuals, as-built drawings, final commissioning, of the work shall be provided as required by the Contract.
  - 9. Provide and maintain, at all times, temporary roadways for site access to all parties involved with the project.

#### 1.06 OWNER SUPPLIED PRODUCTS AND UTILITIES

- A. The Owner will not be supplying equipment, labor, or tools for the project.
- B. The Owner will pay for electricity usage. The restrictions on electrical usage shall be as follows:
  - 1. Power tool usage during specified working hours will only be permitted.
  - 2. Dewatering and trash pumps and portable heaters will not be permitted.
  - 3. Power to help cure concrete or painting systems will not be permitted.
- C. The Owner reserves the right to stop paying for electrical usage at any time if, in the opinion of the Owner/Architect, the Contractor causes excessive electrical charges or does not conserve electricity to the maximum extent possible in the opinion of the Architect. All Contractors shall conserve electricity during the course of construction.

#### 1.07 EXISTING CONDITIONS

- A. The Drawings show certain information that has been obtained by the Owner regarding various conditions that exist at the location of the project both below and at grade.
- B. The Owner and the Architect expressly disclaims all responsibility for the accuracy or completeness of the information given on the Drawings with regard to existing facilities.
- C. In the case where the Contractor discovers an obstruction not indicated on the Drawings or not described via specification reference, then the Contractor shall immediately notify the Architect of the obstructions' existence.
- D. The Architect will determine if the obstruction is to be relocated or removed.
- E. Compensation for this extra work will be paid for in accordance with the provisions in the Contract for "Extra Work".



SUMMARY OF WORK  
Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

**H2M**

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Site access and control of areas outside of site.
- B. Contractor use of the premises.
- C. Contractor storage, parking and deliveries.
- D. Work hours, employee conduct and miscellaneous employee requirements.
- E. Contract requirements related to maintaining Owner's current operations and excess inspection required.

1.02 SITE ACCESS AND CONTROL

- A. The Contractor shall use the designated entrance to the site as shown on the drawings. If no site entrance is designated, the Contractor shall use an entrance designated by the Owner's Construction Representative.
  - 1. The Owner may permit, solely at the Owner's discretion, the temporary use of another entrance for site access.
  - 2. The Owner will only review requests made by the Contractor for an exception to the designated site entrance if made in writing at least 72 hours in advance of each of the times desired for use.
- B. The Contractor is to maintain the entrance area clear of materials, vehicles and any other obstacle or debris. Failure to do so will result in a minimum back charge of \$750 per occurrence.
- C. The area around the site is a residential neighborhood. The Owner intends to be a good neighbor. The Contractor shall not close any road for any period in time. The Contractor shall take whatever measures are necessary to not cause any inconvenience to the area's residents.
- D. The Contractor is responsible to employ methods to prevent construction materials and/or debris from leaving the site. The Contractor is responsible to routinely monitor the areas surrounding the site during the day as well as at the end of the work-day and to immediately clean up any area to its previous condition.
- E. The Contractor shall employ methods to prevent the transmission of dirt from vehicles driving on exposed areas of the site from reaching the surrounding roadways. The Contractor will be responsible to immediately clean the roadway, should the measures being taken by the Contractor not satisfactorily control the transmission of any dirt to the roadway.
- F. Any damages to areas outside the site, spills of soil, liquid, or any other material shall immediately be repaired, cleaned and restored to its previous condition.
- G. The Contractor shall comply with all state and local requirements for allowable weight limits of vehicles on all roads.
- H. The Owner reserves the right to back charge the Contractor for all costs associated with maintaining the grounds as well as maintaining areas outside the site, which may be disturbed



## WORK RESTRICTIONS

H2M

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

by the Contractor should the Contractor fail to maintain or repair the aforementioned in a condition acceptable to the Owner.

- I. The Contractor shall not close any road for any period in time unless approved ahead of time by appropriate road agency. The Contractor shall take whatever measures are necessary to not cause any inconvenience to the area's residents.
- J. The Contractor shall maintain the premises in a safe condition throughout the construction period. Compliance with OSHA regulations and site safety shall be the responsibility of the Contractor as it relates to work of the Contract. The posting of all applicable OSHA safety signs shall be the responsibility of the Contractor.
- K. Contractor shall be responsible for protecting private property. All existing buildings, structures, shrubs, trees, lawn fixtures, sculptures and misc. equipment shall be protected at all times. Any removals or relocation of said objects, if allowed shall be as directed by the Architect or District. Contractor shall protect all of the physical structures, property and improvements from damage by their Work and shall immediately repair or replace damage caused by construction operations, employees or equipment employed by the Contractor. All labor, materials and equipment and outside contractors that are employed by the Owner to repair damage caused by the Contractor shall be billed to the Contractor directly or withheld from money due the Contractor for work already completed.
- L. Keep all existing driveways, roads, and parking areas free and clear of materials and equipment. Do not unreasonably encumber the work area with materials and equipment.
- M. The Contractor is responsible for cleaning up the work area. Failure to maintain a clean work site daily, will result in others performing the work and the Contractor being back charged for the cleaning cost plus construction administration fees.
- N. Do not discard or dispose of any waste on-site.
- O. The Contractor shall be responsible for managing dust.

### 1.03 CONTRACTOR USE OF THE PREMISES

- A. Premises, for the purpose of this Contract, shall mean the site, buildings and other structures located within the property line or in any temporary or permanent construction easements identified on the plans.
- B. The Contractor shall use and manage the premises and the associated construction activities as follows:
  - 1. To not hinder the Owner's ability to operate their facilities.
  - 2. To allow other Prime Contractors to install their work and complete their contractual obligations in the time period specified.
  - 3. To allow for stockpiling of construction material and debris without any significant hardship, as defined by the Owner's Construction Representative, on the Owner or other contractors.
  - 4. To allow for the stockpiling of excavated soil and imported fill, when called for, without any significant hardship, as defined by the Owner's Construction Representative, on the Owner or other contractors.
  - 5. To allow utility companies to install their work.
  - 6. To allow for the delivery of equipment and materials by independent trucking companies by leaving enough space for backing in and out of areas.



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7. To allow for the safe, unimpeded travel way of the Owners vehicles, Owner's Construction Representative's vehicles, Architect's vehicles, construction vehicles and heavy construction equipment about the entire site.
- C. Contractor shall maintain the premises in a safe condition throughout the construction period. Compliance with OSHA regulations and site safety shall be the responsibility of the Contractor as it relates to work of the Contract. The posting of all applicable OSHA safety signs shall be the responsibility of the Contractor.
- D. The Contractor shall be responsible for protecting Owner's property. All existing buildings, structures, shrubs, trees, lawn fixtures, sculptures and misc. equipment shall be protected at all times. Any removals or relocation of said objects, if allowed shall be as directed by Owner's Construction Representative.
- E. The Contractor shall protect all of the physical structures, property and improvements upon the site from damage by their Work and shall immediately repair or replace damage caused by construction operations, employees or equipment employed by the Contractor. All labor, materials and equipment and outside contractors that are employed by the Owner to repair damage caused by the Contractor shall be billed to the Contractor directly or withheld from money due the Contractor for work already completed.
- F. Keep all existing operations areas, driveways, roads, and parking areas free and clear of materials and equipment. Do not unreasonably encumber the site with materials and equipment. Confine stockpiling of excess excavated material, materials and equipment to areas selected under the Site Utilization Plan or as designated by the Owner's construction representative. Locate storage sheds and trailers to areas designated in the plan or by the Owner's Construction Representative.
- G. Immediately remove excess excavated material or relocate to areas on the site requiring placement of fill. Do not stockpile excess material on the site.
- H. The construction site space is limited and it shall be the General Contractor's responsibility to manage the site during the entire construction period with input from all concerned parties as to meeting their needs. Equal consideration of the needs of others with that of the Contractor's shall be provided as judged by the Owner.
- I. Due to the limited site area available for construction, staging areas shall be relocated several times during the various stages of construction. Additional compensation for relocating staging areas, equipment and material storage, and trailers are not to be considered an extra cost to the Contractor as this is an anticipated expense that shall be considered at the time of the bid.
- J. The Contractor is responsible for cleaning up their own materials and debris. Failure to maintain a clean work site daily, will result in other performing the work and The Contractor being back charged for the cleaning cost plus construction administration fees.
- K. Use of the existing building facilities during construction is prohibited including but not limited to: toilet rooms, telephone and water fountains. The Contractor shall be fined (\$250) per occurrence if their employee (or subcontractor's employee) is observed disregarding these rules.
- L. Should it become necessary to access the existing building during construction hours for measurements or other non-disruptive work, the contractor shall be escorted by an Owner's Construction Representative.



- M. Refer to Section 015000 - Temporary Facilities and Controls for minimum rubbish removal requirements.
- N. Do not discard or dispose of any waste on-site.
- O. Open fires will not be permitted on the site.
- P. The Sitework Contractor shall employ erosion control measures to protect wetlands located adjacent to the work where shown on the Drawings and as required by regulatory agencies.
- Q. Install erosion control measures as indicated in the Contract. The Contractor shall confine stormwater runoff to the site.
- R. The General Contractor shall be responsible for managing dust as specified in Section 015719.

#### 1.04 CONTRACTOR STORAGE, PARKING AND DELIVERIES

- A. Contractor must provide exterior storage containers when required. Final location of storage container shall be determined by the Owner.
- B. Do not unreasonably encumber the premises with materials and equipment. Do not store material in existing buildings. Store all equipment and materials to allow the Owner's employees to operate and conduct their business safely.
- C. Confine premise storage areas to locations designated by the Owner. Immediately repair or replace damaged facilities to the satisfaction of the Owner and to a condition that existed before the damage occurred as determined by preconstruction photographs, or if photographs are unavailable, to that deemed by the Owner.
- D. No materials storage will be permitted within the buildings at any time during construction.
- E. Storage of chemicals and paint materials shall be outside the existing or new structures and shall follow manufacturer's storage/handling guidelines.
- F. Compressed gas containers shall be properly stored and secured per OSHA, to the satisfaction of the Owner. Failure to do so will result in a \$250 back charge, per occurrence.
- G. Contractor shall provide minimum of 48 hours advance written notice to the Owner's Construction Representative for deliveries of materials, site visits by inspectors, manufacturer's representatives or any other occasion that impacts the use of the site. Contractor shall be responsible for any costs that are incurred by the owner, for failure to meet previously agreed upon appointments or work schedules.
- H. Deliveries sent to the Owner will not be signed for or unloaded by the Owner. They will be directed to the construction site and if no employee is on site, the delivery will be rejected, at the contractor's expense.
- I. Night deliveries of equipment (past the designated quitting time) will not be permitted. Do not schedule trucking companies to deliver equipment or wait for the job site to open. Delivery trucks shall not obstruct the site entrance, shall not sit within the neighborhood causing an obstruction or perceived nuisance, nor be left idling on or off the site for any period of time.



- J. Parking shall be in the designated areas of the site only. All automotive type vehicles are to be locked when parked or unattended to prevent unauthorized use. Do not leave vehicles or equipment unattended with the motor running or the ignition key in place. Any vehicles or trucks in non-designated areas may be towed at contractor's expense.

#### 1.05 WORK HOURS, EMPLOYEE CONDUCT AND MISCELLANEOUS EMPLOYEE REQUIREMENTS

- A. The Contractor will be permitted to schedule working days and hours as specified in the General Terms and Conditions, if no times are specified therein then the work hours shall be Monday - Friday 8:00 am - 4:00 pm.
- B. Employees are to act in a professional manner. Any employee using inappropriate language or who is disruptive to the work environment will be banned from the site.
- C. Proper work attire is required. Shirts are to be worn at all times and no short pants are permitted.
- D. Employees shall not converse with local residents or Owner's employees.
- E. Any employee found under the influence of any drug or alcohol will be banned from the site.
- F. The Contractor shall schedule working days and hours as specified. The contractor shall pay all excess costs for working beyond the times specified. This includes the cost of the owner's employees to keep the building/site open and/or the cost of the additional services for the construction manager.

#### PART 2 - PRODUCTS

NOT USED

#### PART 3 - EXECUTION

NOT USED

**END OF SECTION**



**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Site Utilization Plan requirements

**1.02 SITE UTILIZATION PLAN REQUIREMENTS**

- A. The Contractor shall prepare a Site Utilization Plan (SUP) showing staging areas, parking areas, stockpile areas, debris container areas, unloading areas, and trailer areas for review by the Architect and Owner's Construction Representative. The length and number of meetings necessary to develop and adopt a SUP shall be as required.
- B. Meetings will be held at the site with all concerned parties to assist the Contractor in developing the criteria for the plan. During these meetings, all parties will present their needs and requirements for site utilization. Representatives from the local municipality or utility companies may be attending. The requirements of the local municipality and utility companies shall be incorporated into the SUP.
- C. The Contractor shall then prepare a draft site plan that attempts to incorporate the needs of all concerned parties. Another meeting will then be held at the site to review and present the plan. The plan shall then be revised at that meeting and adopted for use if it is acceptable to all relevant parties. If all parties cannot agree on an acceptable plan, then the Owner's Construction Representative will establish the Site Utilization Plan without any claims from any contractor.
- D. The Contractor, by submitting a bid, understands the importance of a workable Site Utilization Plan and also understands that the Owner's Construction Representative may be required to select a plan for the contractor to adopt that is not ideal to the planned construction activities anticipated before the bid was submitted. There shall be no claims for damages associated with site utilization.
- E. If the Contractor fails to prepare the Site Utilization Plan as stipulated above, then the Owner reserves the right to back charge the Contractor for the costs associated with having a Site Utilization Plan developed.
- F. If a Prime Contractor fails to participate or attend the meetings scheduled to develop the Site Utilization Plan then the Prime Contractor will forfeit any right to comment on the plan that is developed.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**END OF SECTION**



## ALLOWANCES

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### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. Allowance pricing for the following items:
  - 1. Contingency Account.
- B. This Section covers the requirements for use of the cash allowances listed above contained in the proposal (Bid Forms, Price Schedule) and included in the Contract Price bid by the Contractor and defines and stipulates the charges that will be paid for out of the stipulated allowances.
- C. The Contractor shall include the cash allowances stipulated in this Section in the amount bid (Base Bid).
- D. Eligible costs described in this Section, and Sections referenced herein, will be the only costs paid for out of the stipulated allowances.
- E. All other costs associated with the project as specified and/or shown, including but not limited to the delivery, installation and all Contractor overhead and/or collateral expenses are to be distributed among the other portions of the work and shall be included in the lump sum base bid.

#### 1.02 SUBMITTALS

- A. Make all submissions under the provisions of Section 013300.
- B. For each type of product/material specified to be furnished under allowance pricing provide documentation of the unit pricing on manufacturer's letterhead certifying pricing of the product/material.
- C. Submit additional backup information to substantiate the invoiced amount(s) as the Architect may require for review and approval, prior to order or payment of item.
- D. Provide written breakdowns for extra work as the Owner may require.

#### 1.03 CHANGES TO STIPULATED (CASH) ALLOWANCE

- A. If the actual cost of services differs from the cash allowance, then the Contract Price will be adjusted accordingly.

#### 1.04 PAYMENTS TO BE MADE OUT OF CONTINGENCY ACCOUNT

- A. Include the cash allowance as shown in the proposal, in the amount bid for use upon the Owner's instructions.
- B. The Owner will draw funds from the contingency account only upon prior written approval by the Owner's Construction Field Representative and Architect.
- C. Funds remaining at project closeout shall be credited to the Owner.



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PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. **This Section includes the requirements for substitution of specified products during construction.**
- B. *The Architect will consider requests for substitutions only within **two (2)** business days following the Bid Opening.*
- C. Only products not specifically named in the bid are eligible for substitution in accordance with the requirements contained herein these specifications.
- D. Products named by the Bidder, at the time of bid, shall be furnished and installed and substitutions will not be considered by the Owner/Architect for those products.

### 1.02 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standard, select any product meeting that standard.
- B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which complies with the Specifications.
- C. Where products are not named, then submit products that meet the specifications.

## PART 2 - PRODUCTS

### 2.01 SUBSTITUTIONS

- A. Name - The Drawings and Specifications list acceptable manufacturers, commercial names, trademarks, brands and other product, material and equipment designations. Such names are provided to establish the required type, quality and other salient requirements of procurement.
- B. Equals - An item equal to that named or described on the Drawings or in the Specifications may be provided by Contractor if accepted in writing by the Architect.
- C. A request for product substitution constitutes a representation that the Contractor:
  - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
  - 2. Shall provide the same warranty for the Substitution as for the specified Product.
  - 3. Shall coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner, including extra charges by material suppliers and vendors.
  - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
  - 5. May be responsible to reimburse the Owner for review or redesign services associated with re-approval by authorities, if required.
  - 6. May be responsible to reimburse the Owner for all additional A/E services needed by the Architect for extra services associated with the review of the Contractor's substituted item since it could not have been originally included in the Architect's professional engineering services agreement. Reimbursement shall be based on the man-hours expended, at current billing rates. A copy of the billing rates will be provided to the contractor for approval prior to services being provided.



- D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. Substitution Submittal Procedure:
  - 1. The Contractor shall submit three (3) copies of the REQUEST FOR SUBSTITUTION FORM for consideration including all required information.
  - 2. The Contractor shall use the form included within this Section.
  - 3. All forms shall be type written.
  - 4. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
- F. The burden to prove product equivalence rests on the Contractor.
- G. The Architect will notify Contractor in writing of decision to accept or reject request and at that time the Contractor can make a formal submittal in accordance with the requirements contained in Section 013300.
- H. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor or the Architect.
- I. **Refer to the general conditions for additional requirements.**

PART 3 - EXECUTION

NOT USED

**This space left intentionally blank.**



**REQUEST FOR SUBSTITUTION FORM**

Project: Innovation Suite at Dows Lane  
Elementary School

Substitution Request Number: \_\_\_\_\_

Contractor: \_\_\_\_\_

Address: \_\_\_\_\_

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

H2M Project Number: IRSD2003

Owner: Irvington Union Free School District

Contract Name: \_\_\_\_\_ Contract No.: \_\_\_\_\_

Specification Title: \_\_\_\_\_

Section: \_\_\_\_\_ Page: \_\_\_\_\_ Article/Paragraph: \_\_\_\_\_

Drawing No(s): \_\_\_\_\_

Proposed Substitution: \_\_\_\_\_

Manufacturer: \_\_\_\_\_ Address: \_\_\_\_\_

Trade Name: \_\_\_\_\_ Phone #: (\_\_\_\_) \_\_\_\_\_

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 (Attach separate sheet if necessary):



**Typical Similar Installation:**

Project: \_\_\_\_\_

Engineer / Architect: \_\_\_\_\_

Address: \_\_\_\_\_

Owner: \_\_\_\_\_

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

Submit complete installation list on separate sheets.

Proposed substitution affects other parts of Work: ☐ No ☐ Yes

Explain: \_\_\_\_\_

Gross Savings to Owner for accepting substitution: \$ \_\_\_\_\_

Proposed substitution changes Contract Time: ☐ No ☐ Yes

Add / deduct (circle): \_\_\_\_\_ days

Supporting data attached for evaluation of the proposed substitution:

☐ Product Data ☐ Photos ☐ Drawings ☐ Tests ☐ Reports ☐ Samples

☐ Other (explain): \_\_\_\_\_

Attached data includes description, specifications, drawings, photographs, performance and test data adequate for evaluation of request; applicable portions of data are clearly identified.

Attached data also includes a description of changes to Contract Documents that proposed substitution will require for its proper installation.



**The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:**

1. Proposed Substitution has been fully checked and coordinated with Contract Documents.
2. Proposed Substitution does not affect dimensions shown on Drawings.
3. Proposed Substitution does not require revisions to any other Prime Contractor's work.
4. The undersigned will pay for changes to building design, including Architectural and Engineering design, detailing, and construction costs caused by requested Substitution.
5. Proposed Substitution will have no adverse affect on other trades, construction schedule, or specified warranty requirements.
6. Maintenance and service parts will be locally available for proposed substitution.
7. The undersigned further states that the function, appearance, and quality of proposed Substitution are equivalent or superior to specified item.

**This request for product substitution also constitutes a representation that I, as the Contractor:**

1. Has investigated proposed Product and determined that it meets or exceeds the quality of the specified Product.
2. Shall provide the same warranty for the Substitution as for the specified Product.
3. Shall coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner, including extra charges by other Prime Contractors, material suppliers, and vendors.
4. Waives claims for additional costs or time extension that may subsequently become apparent.
5. Shall reimburse the Owner and the Architect for review or redesign services associated with re-approval by authorities.
6. Shall reimburse the Owner for all additional engineering services claimed by the Architect for extra services associated with the review of the Contractor's substituted item since it could not have been originally included in the Architect's professional engineering services agreement. Reimbursement shall be based on the man-hours expended, at current billing rates.

Contractor's Authorized Representative (Typewritten): \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

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

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 DESCRIPTION

- A. Work under this Section specifies the procedures used to process partial payments and the Final Payment Request.

### 1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements governing each prime contractor's Applications for Payment.
  - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
  - 1. Schedules: The Contractor's Construction Schedule and Submittal Schedule are specified in Division 01 - Section 013300 - SUBMITTALS.

### 1.03 TIME FOR COMPLETION

- A. Inasmuch as the provisions of the Contract relating to the time for performance and completion of the Work are for the purposes of enabling the Owner to proceed with the construction of a public improvement in accordance with a predetermined program, and inasmuch as failure to complete the Work within the period herein specified may result in damage or loss to the Owner, time is of the essence of the Contract.
- B. Time for completion of the Work shall be in accordance with that stipulated in the Contract Documents.
- C. The date for completion will be calculated from the date shown on the Notice to Proceed. The Contractor shall execute the Work with diligence from day to day, and complete it within the time fixed.
- D. For the purpose of defining the date of substantial completion, the Project will be considered complete when all Work covered by the Contract has been performed and all installations and equipment have been tested and are ready for permanent use. Contractor shall provide a copy of the final Certificate of Occupancy from the AHJ prior to issuance of the final payment. Removal of the Contractor's plant and equipment and other minor adjustments which do not prevent use of the Project will not be a factor in establishing the date of substantial completion.
- E. Notwithstanding the foregoing, the Architect will establish the date of substantial completion when the project is accepted and ready for operation, and no large or major items of work are as yet outstanding. At such time, the Architect will issue a punch list, itemizing the items of work remaining. The punch list will include "minor" items only, as defined solely by the Architect. Any prior punch lists, which include "major" or significant items, as defined by the Architect, shall not be a criterion in establishing the date of substantial completion.

### 1.04 PARTIAL COMPENSATION

- A. At the Owner's discretion, the Contractor may receive compensation for materials and products delivered to the site yet not installed providing:
  - 1. A canceled check or paid bill from the supplier is submitted to the Architect indicating that the Contractor has paid the supplier for the material or equipment.



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2. The material or piece of equipment is properly stored and protected from the elements and/or vandalism in accordance with the manufacturer's written requirements for long term storage.
  3. A certificate of insurance is provided for the material or piece of equipment in the event of a fire, vandalism, theft, etc.
  4. A bill of material is delivered to the Architect at the time of delivery itemizing the subject material or equipment. Payment will be made for on-site material and/or equipment in the amount of 80% of the gross amount of the paid invoice. This payment will be subject to the normal retainage of the partial estimate.
  5. The Architect has agreed to the pre-purchasing of the materials.
- B. The Contractor may not receive compensation for materials and products stored in the Contractor's yard or shop unless permitted by the Owner.

### 1.05 SCHEDULE OF VALUES

- A. Coordination: Contractor shall coordinate preparation of its Schedule of Values for the Work with preparation of the Contractors' Construction Schedule.
1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
    - a. Contractor's Construction Schedule.
    - b. Application for Payment forms, including Continuation Sheets.
    - c. List of subcontractors.
    - d. Schedule of allowances.
    - e. Schedule of alternates.
    - f. Schedule of submittals.
  2. Submit the Schedule of Values (SOV) to the Owner's Construction Representative within 10 days of receipt of Letter of Intent but no later than 10 days before the date scheduled for submittal of the initial Applications for Payment. (SOV received after the 15 day of the month, will not be accepted for review until the following month to allow for computer system input time required by the Owner's Construction Representative and the Owner.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one item for each Specification Section.
1. Identification: Include the following Project Identification on the Schedule of Values:
    - a. Project name and location. (Each school and additions / renovations will require separate breakdown sections and front end with subtotals.
    - b. Name of the 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 Work.
    - c. Name of subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Change Orders (numbers) that affect value.
    - g. Dollar value.
      - 1) Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.



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3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items where requested by Owner's Construction Representative. Multiple line items will be provided for amounts in excess of five percent of the contract sum, broken out into sub components equating not greater than five percent each. Separate all line items by material & labor.
  - a. Breakdown shall be separated between additions and renovations with subtotals for each.
4. In addition to the breakdown of specification sections , separate line items will be required for the following front-end line items:
  - a. Bonds & OCP insurances shall have separate line items. (substantiation letters shall be required from bonding & insurance company for any amounts higher than industry standard). Only OCP insurance shall be allowed for the insurance line item. All other insurance costs must be distributed by contractor throughout the various sections.
  - b. Supervision: include a minimum of one percent of contract value.
  - c. Project Administration: include a minimum of one percent of contract value.
  - d. Project meetings (appropriate value for weekly attendance for entire duration of project - see Section 013119 Project Meetings).
  - e. Punchlist - include a minimum of two (2) percent of contract sum.
  - f. Closeout: separate lines for demobilization, Operation & Maintenance manuals, closeout paperwork and Demonstration & Training. All totaling a minimum two (2) percent of the Contract value.
  - g. Continuous Clean-up and Final Clean-up values each at a minimum of one half percent (0.5 % of the Contract value).
  - h. The General Construction Contractor shall add a line item for broom sweep/ damp mopping at an agreed to value.
5. Round amounts to nearest whole dollar; the total shall equal the Contract Value.
6. Provide a separate line item in the Schedule of Values (SOV) for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing.
7. Provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Unit-Cost Allowances: Show the line-item value of unit-cost allowances, as a product of the unit cost, multiplied by the measured quantity. Estimate quantities from the best indication in the Contract Documents.
9. Margins of Cost: Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin 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 expenses, at the discretion of the Contractor.
10. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Value.



#### 1.06 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
  - 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment-Application Times: Each progress-payment date is indicated in the Agreement. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment-Application Times: The date for each progress payment is the 21st day of each month (or as designated by the Owner). The period covered by each Application for Payment is the previous month.
- D. Payment-Application Forms: Use AIA Document G732/CMA ( include line for Owner's Construction Representative signature ) and Continuation Sheets G703 as the form for Applications for Payment.
  - 1. Separate Continuation Sheets shall be provided for work which takes place on each building, which will detail that portion of the contract which is attributable to the specific building. The appropriate S.E.D. project number(s) shall be shown on the top of each continuation form.
- E. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Owner's Construction Representative will return incomplete applications without action.
  - 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
  - 2. Include amounts of Change Orders and Allowances issued prior to the last day of the construction period covered by the application. (No Change order or Allowance requisitions can be made or listed on the requisition, unless the formal Change Order and Allowance paperwork has been fully executed by Contractor, Owner's Construction Representative, Architect and Owner).
  - 3. Provide copies of payrolls which are signed and notarized documenting compliance with prevailing wage laws. Payrolls for contractors are required from the of the previous month to the 24th day of the current month. Payrolls for subcontractors are required from the 15th day of the previous month to the 14th day of the current month.
  - 4. Provide copies of Lien Waivers for the previous payment (or anticipated payment). Include certificate of monthly payment for subcontractors for the previous month.
  - 5. Provide OSHA 10 certificates for all workers on site.
  - 6. Payment for stored materials (whether on-site but not installed, or offsite in a secured warehouse) will require a Bill of Lading showing the exact value accompanied by photographs of the actual materials. In no case shall more that 80% be approved for uninstalled stored materials. An Insurance certificate must be provided, specific to the materials stored with the appropriate dollar value (for on-site or offsite materials).
- F. Transmittal: Submit five (5) signed and notarized original copies of each Application for Payment to the Owner's Construction Representative by a method ensuring receipt within 24 hours. Each copy shall be complete and securely attached and shall include all waivers of lien, certified payrolls and similar attachments.



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1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect and Owner's Construction Representative.
- G. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.
  1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
  2. When an application shows completion of an item, submit final or full waivers.
  3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
    - a. Submit final Applications for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- H. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment include the items listed below. The initial payment application will not be processed until all of these actions and submittals have been received by the Owner's Construction Representative. When preliminary submissions are received with the initial application (item 4 and item 7 listed below), the final submission for these items must be received and approved by the Owner's Construction Representative prior to submission of the second application for payment.
  1. List of subcontractors.
  2. List of principal suppliers and fabricators.
  3. Schedule of Values.
  4. Contractor's Construction Schedule (preliminary if not final).
  5. Schedule of principal products.
  6. Schedule of unit prices.
  7. Submittal Schedule (preliminary if not final).
  8. List of Contractor's staff assignments.
  9. List of Contractor's principal consultants.
  10. Copies of building permits.
  11. Copies of authorizations and licenses from governing authorities for performance of the Work.
  12. Initial progress report.
  13. Report of preconstruction meeting.
  14. Certificates of insurance and insurance policies.
  15. Performance and payment bonds.
  16. Data needed to acquire the Owner's insurance.
  17. Initial settlement survey and damage report, if required.
- I. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.

### 1.07 ACCEPTANCE OF FINAL PAYMENT REQUEST

- A. The Contractor shall be conclusively deemed to have accepted the Final Payment Request as a correct statement of the total liability of the Owner and of the compensation paid and to be paid to the Contractor by the Owner unless within seven (7) days after delivery of his copy of the



Final Payment Request to him, the Contractor shall return such copy to the Owner together with a statement of his objections to such request and of any claim for damages or compensation in excess of the amounts shown on the Request. The acceptance by the Contractor of the Final Payment Request approved by the Owner shall constitute a release and shall discharge the Owner from all further claims by the Contractor arising out of or relating to the Contract, including but not limited to, a release from all impact costs.

#### 1.08 SCOPE OF PAYMENTS

- A. The Contractor shall receive and accept the compensation as herein provided, in full payment for furnishing all materials, labor, tools, and equipment and for performing all work contemplated and embraced under the Contract, also for all loss or damage arising out of the nature of the Work or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered during the prosecution of the Work, and for all risks of every description connected with the prosecution of the Work, until its final acceptance by the Owner, also for all expenses incurred by, or in consequence of, the suspension or discontinuance of the said prosecution of the Work as herein specified, and for all actual or alleged infringements of patent, trademark, or copyright, and for completing the Work and the whole hereof, in an acceptable manner, according to the Plans, Specifications, and other Contract Documents. The payment of any partial or final estimate shall in no way or in no degree prejudice or affect the obligation of the Contractor, at his own cost and expense, to renew or replace all defects and imperfections, or damages. The Architect shall be the judge, and the said Contractor shall be liable to the Owner for failure so to do.

#### PART 2 - PRODUCTS

NOT USED.

#### PART 3 - EXECUTION

NOT USED.

**END OF SECTION**



PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Schedule of Values

1.02 SCHEDULE OF VALUES

- A. Submit for approval prior to the start of the work a Schedule of Values that indicates a breakdown of the labor, materials and equipment and other costs used in the preparation of the bid. This schedule shall be in sufficient detail to indicate separate figures for such items as excavation, concrete, equipment and all other items making up the lump sum price. The cost breakdown shall be separately itemized for each lump sum bid item in the project.
- B. Where the cost breakdown includes items for bond payment, insurance payment, job set-up, or job mobilization, these items will be paid based on paid invoices and copies of cancelled checks.
- C. Submit a Schedule of Values to the Architect for review and approval within fifteen (15) calendar days from the date shown on the Notice to Proceed.

1.03 FORM OF SUBMITTAL

- A. Submit typewritten Contract Cost Breakdown on AIA Form G703 - Application and Certificate for Payment Continuation Sheet or EJCDC 1910-8-E. The Architect reserves the right to revise the form or provide a form prepared by the Architect.
- B. Use the Table of Contents of the Contract Specifications as a basis for format for listing costs of work for Sections under Divisions 01-48 as sections apply to work. Not all Sections need be assigned a breakout price as determined by the Architect.
- C. Identify each line item with number and title as listed in Table of Contents.
- D. Provide dollar values for each line item for labor, overhead, profit, material, and equipment components for each category of work if requested by the Architect.
- E. List quantities of materials specified under unit price allowances.
- F. The Schedule of Values, after approval by the Architect, shall be the basis for the Contractor's Application for Payment.
- G. The first Application for Payment will not be reviewed prior to an approved breakdown.

1.04 PREPARATION OF SCHEDULE OF VALUES

- A. In addition to the above, provide a separate line item cost for each of the following items which shall be supported by proof where requested by Architect:
  - 1. Performance and payment bonds.
  - 2. Insurance.
  - 3. Mobilization and Demobilization (Amounts shall be equal in value).
  - 4. Temporary facilities and measures as specified in Section 015000.
  - 5. Project Coordination Meetings as specified in Section 013100.



## SCHEDULE OF VALUES

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6. Preparation of the Project Construction Schedule, and updates, as specified in Section 013300.
7. Preparation of Weekly Schedules as specified in Section 013100
8. Rubbish removal and daily cleaning up. (Provide a total dollar amount and a daily rate for each calendar day during the contract period.)
9. All Cash Allowance items as contained in Section 012100.
10. On-site, full time superintendent starting on the date of the Notice To Proceed and ending on the date that all punch list items are completed, which for the purposes of the Schedule of Values, shall be the contract completion date.
11. Final cleaning.

B. Show total costs including overhead and profit.

C. Provide additional details and data to substantiate the cost breakdown as requested by the Architect.

### PART 2 - PRODUCTS

NOT USED

### PART 3 - EXECUTION

NOT USED

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. Work of this Section includes:
  - 1. Requests for Interpretation or for information
  - 2. Administration of subcontracts
  - 3. Coordination of work with utility companies and the Owner/Architect
  - 4. Communication and coordination requirements
  - 5. Qualifications of Contractor's job site superintendent
- B. Site staffing requirements for the Contractor's superintendent are also specified herein, the costs for which shall be included in the Contract price.

### 1.02 REQUEST FOR INTERPRETATION OR INFORMATION

- A. The Contractor shall use the Request for Interpretation/Information Form included within this Section when the Contractor feels that additional information is needed to perform the work of the Contract.
- B. The Architect will respond to requests utilizing the form provided herein.
- C. The Architect's verbal response(s) to the Contractor's formal requests, if provided, shall not constitute an official response and if acted upon by the Contractor are done so at the Contractor's own risk and liability and shall not be subject to claims for additional compensation.
- D. A signed facsimile of the form will be accepted. The original of the form must be signed and provided to the project manager.
- E. The Architect will respond in writing to the request as soon as possible.

### 1.03 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit one copy to the Owner's Construction Representative by 10:00 a.m. the following day. Any contractor not submitting required reports will not receive approval of the subsequent application for payment until such time that all required information is submitted:
  - 1. List of subcontractors at the site.
  - 2. Count and names of personnel at the site.
  - 3. High and low temperatures, general weather conditions.
  - 4. Accidents and unusual events.
  - 5. Meetings and significant decisions.
  - 6. Stoppages, delays, shortages, and losses.
  - 7. Meter readings and similar recordings.
  - 8. Emergency procedures.
  - 9. Orders and requests of governing authorities.
  - 10. Change Orders received, implemented.
  - 11. Services connected, disconnected.
  - 12. Equipment or system tests and startups.
  - 13. Partial Completions, occupancies.
  - 14. Substantial Completions authorized.



#### 1.04 SUBCONTRACTOR ADMINISTRATION AND COORDINATION

- A. Terms and conditions of the Contract shall be binding upon each subcontractor.
- B. Furnish each subcontractor and major equipment vendor at least one (1) copy of the Plans and Technical Specifications.
- C. Provide at least one (1) copy of each approved shop drawing to each subcontractor whose work may depend upon the contents of the shop drawing submittal. The Owner reserves the right to stop all work, without claims for delay, until such time as appropriate subcontractors are furnished with appropriate shop drawings.
- D. The Contractor shall sequence and schedule the work of subcontractors. Coordinate construction and administration activities of subcontractors. The Architect and Owner will not accept telephone calls, facsimiles or office visits from any subcontractors on the project. Subcontractor and vendor questions and clarifications shall be directed to the Architect by the Contractor.
- E. The Contractor's on-site project superintendent shall inspect all the work of all of his/her subcontractors, as it is being constructed. The Contractor's subcontractor shall not be permitted to do any work on the site without the Contractor's job site superintendent also being there to inspect the work as it is being performed.

#### 1.05 UTILITY COORDINATION

- A. Comply with the requirements of 16 NYCRR Part 753 - Protection of Underground Facilities. Submit a letter stating the case number.
- B. Comply with the utility coordination requirements contained in the General Conditions.

#### 1.06 PUBLIC/PRIVATE UTILITIES

- A. Notify all public and private utilities in accordance with Article 20, Section 322-a of the New York State General Business Law for location and markout of existing utilities in the vicinity of the work.
- B. Repair all utilities damaged during the Work to the standards and approval of the respective utility at no cost to the Owner.

#### 1.07 CONTRACTOR'S JOB SITE SUPERINTENDENT

- A. The Contractor shall employ an on-site superintendent as specified herein below. He/She shall be a full-time employee of the Contractor.
- B. The Contractor shall name the job site superintendent within five (5) days of the Notice To Proceed. A letter to the Architect shall be provided.
- C. He/She shall have the authority to sequence and schedule the work, and to staff the project, so as not to interfere with the work by others and to complete the work daily within the time so required.



- D. The Superintendent shall have a minimum of five (5) years of experience as a job site superintendent for projects of equal size and complexity.
- E. The superintendent shall be qualified to perform the duties so required to successfully complete the work in accordance with the Contract Documents.
- F. The superintendent shall speak English. If required by the Architect, provide a resume for the proposed superintendent that shall be typed and shall list the qualifications of the superintendent. Prior to the Contractor assigning a superintendent to the project, he may wish to arrange an interview with the Architect to determine the proposed superintendent's ability to properly coordinate the work through the Owner/Architect. The Contractor shall employ a superintendent acceptable to the Owner.

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PROJECT MANAGEMENT AND COORDINATION  
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REQUEST FOR INTERPRETATION/INFORMATION (RFI)

OWNER'S NAME: Irvington Union Free School District

PROJECT NAME & CONTRACT DESIGNATION: Innovation Suite at Dows Lane Elementary  
School

CONSTRUCTION CONTRACT NO.: IRSD2003

Product, Item, or System:			
Request Date:		RFI No.:	
Specification Section:		Paragraph Ref:	
Contract Drawing Reference(s):			
Describe Request:			
Signed:		See Contractor's Attachments for Additional Description for Information	
Owner/Architect Response:			
Architect (Printed):		See Architect's Attachments for Additional Information	
Architect's Signature & Date		<i>Response Accepted By Contractor</i> <i>Contractor's Signature &amp; Date</i>	
The Work shall be carried out in accordance with these supplemental instructions without change in Contract amount or Contract time for completion. Prior to proceeding with these instructions, indicate your acceptance of these instructions by signing where indicated and returning this form to the Architect.			



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PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. Work of this Section includes the requirements for progress meetings, including but not limited to, the following:
  - 1. Preconstruction conferences.
  - 2. Preinstallation conferences.
  - 3. Progress meetings.
  - 4. Coordination meetings.

### 1.02 PRE-CONSTRUCTION CONFERENCE

- A. A preconstruction conference will be scheduled before starting construction, at a time convenient to the Owner, Owner's Construction Representative and the Architect, but no later than 15 days after issuance of the Letter of Intent. The conference will be held at the Project Site or another convenient location.
- B. Attendees: Authorized representatives of the Construction Manager, Owner, Architect, and their consultants; the Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and be authorized to speak/make decisions, on behalf of the concern they represent, on matters relating to the Work.
  - 1. Agenda: Discuss items of significance that could affect progress, including the following:
  - 2. Tentative construction schedule.
  - 3. Critical work sequencing.
  - 4. Designation of responsible personnel.
  - 5. Procedures for processing field decisions and Change Orders.
  - 6. Procedures for processing Applications for Payment.
  - 7. Distribution of Contract Documents.
  - 8. Submittal of Shop Drawings, Product Data, and Samples.
  - 9. Preparation of record documents.
  - 10. Use of the premises.
  - 11. Parking availability.
  - 12. Office, work, and storage areas
  - 13. Equipment deliveries and priorities.
  - 14. Safety procedures.
  - 15. First aid.
  - 16. Security.
  - 17. Housekeeping.
  - 18. Working hours.
- C. Reporting: The Owner's Construction Representative shall set-up the meeting(s), prepare and issue meeting minutes to attendees and interested parties.
- D. The Contractor is required to attend the pre-construction conference at a location, date, and time selected by the Owner.

### 1.03 PREINSTALLATION CONFERENCES

- A. Contractor shall conduct a pre-installation conference at the Project Site before each construction activity that requires coordination with other construction activities / trade work.



- B. Attendees: The Installer and representatives of the Prime Contractor, manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Owner's Construction Representative and Architect of scheduled meeting dates.
1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for the following:
    - a. Contract Documents.
    - b. Options.
    - c. Related Change Orders.
    - d. Purchases.
    - e. Deliveries.
    - f. Shop Drawings, Product Data, and quality-control samples.
    - g. Review of mockups. Possible conflicts.
    - h. Compatibility problems.
    - i. Time schedules.
    - j. Weather limitations.
    - k. Manufacturer's recommendations.
    - l. Warranty requirements. Compatibility of materials. Acceptability of substrates. Temporary facilities.
    - m. Space and access limitations.
    - n. Governing regulations. Safety.
    - o. Inspecting and testing requirements. Required performance results.
    - p. Recording requirements Protection.
  2. Prime Contractor shall record significant discussions, agreements and disagreements of each conference and the approved schedule. Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.
  3. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest possible date.
  4. Reporting: Prime Contractor or Installer shall issue meeting minutes to attendees, Owner's Construction Representative, Owner and Architect and associated field representatives.

#### 1.04 PROGRESS MEETINGS

- A. Progress meetings will be held at the Project Site at regular intervals (typically weekly) as determined by the Owner's Construction Representative and Architect.
- B. Attendees: In addition to representatives of the Owner, Owner's Construction Representative, and the Architect, each Prime Contractor shall be represented at these meetings. Attendance is mandatory at weekly meetings and contractor will include in their bid a sum of \$250.00 per meeting (figure 10 meetings) to have an authorized individual in attendance capable of making decisions and providing direction. This amount will be listed as a separate line item on the contractors Schedule of Values. If the contractor misses a meeting without prior written authorization from the Owner's Construction Representative, they will be issued a deduct change order in the amount of \$250.00 per occurrence. Subcontractors, suppliers, or other entities will be invited at the discretion of the Owner, Owner's Construction Representative, and the Architect. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.



- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
  - 1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
  - 2. Review the present and future needs of each entity present, including the following:
    - a. Interface requirements. Time.
    - b. Sequences.
    - c. Status of submittals. Deliveries.
    - d. Off-site fabrication problems. Access.
    - e. Site utilization.
    - f. Temporary facilities and services.
    - g. Hours of work.
    - h. Hazards and risks.
    - i. Housekeeping.
    - j. Quality and work standards. Change Orders.
    - k. Documentation of information for payment requests.
- D. Reporting: Approximately 5 days after each meeting, Owner's Construction Representative will prepare and distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
- E. Progress meetings will be held approximately once every two (2) weeks during the project. The Owner may elect to hold meetings more or less frequently.
- F. At least seven (7) calendar days advance notice will be given by the Owner's Construction Representative or the date for the upcoming meeting will be set during the progress meeting.
- G. Attendance at progress meetings shall be mandatory. An amount of \$1,000 shall be deducted from the Contract Amount for each announced meeting not attended by the Contractor.
- H. The owner, a partner, or a corporate officer representing the Contractor shall attend each announced progress meeting. The job site superintendent and office project manager for each Contractor shall also attend.
- I. Subcontractors shall attend when requested by the Owner or Owner's Construction Representative at no cost to the Owner.
- J. Meetings will be conducted by Owner's Construction Representative at a location selected by the Owner, normally at or adjacent to the project site.
- K. The minimum agenda will cover:
  - 1. Review minutes of previous meetings.
  - 2. Identify present problems and resolve them.
  - 3. Plan work progress during next work period.
  - 4. Review the status of off-site fabrication and delivery schedule.



## PROGRESS MEETINGS

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5. Review shop drawings and submittal schedules.
6. Review change order status.
7. Review status of construction progress schedule.
8. Coordinate access requirements.
9. Other business related to the work.
- 10.

### 1.05 COORDINATION MEETINGS

- A. Conduct project coordination meetings at regular intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.
- D. The Owner's Construction Representative Field Manager will conduct daily meetings with the prime contractors and major subcontractors foremen. The purpose of the meetings is to provide the opportunity for each contractor to communicate to the Field Manager any items relating to their respective construction activity for that day (request for shutdown, deliveries, etc.) The meetings will commence from 7:00 o'clock am until 7:30 o'clock am. These meetings are generally informal. The Owner's Construction Representative Field Manager will keep minutes of these meetings when appropriate and will be available upon request.

### 1.06 SAFETY MEETINGS

- A. Each Contractor will be responsible to conduct their own safety meetings on a regular basis (but not less than four times during any thirty day period.)
- B. Minutes of the Safety Meeting must be maintained by each contractor on-site and must be made available upon request. Failure to conduct and submit meeting minutes will be grounds to reject the Prime Contractor's progress payment.

### 1.07 OTHER MEETINGS

- A. Attend special meetings which may be required or called for by Federal, State or Local authorities, utility companies, Owner, Architect or any other firm, person or organization related to the project.

### 1.08 CONDUCTING MEETINGS

- A. General - This paragraph covers Owner, Owner's Construction Representative, and Architect meetings with Contractor and/or his subcontractors. Neither the Owner nor the Owner's Construction Representative nor the Architect wish to meet solely with a subcontractor and requests for such meetings will be discouraged. If a meeting is deemed necessary, every effort will be made to have Contractor attend. If, for some reason, circumstances do not allow such, the meeting may be held, minutes of the meeting will be sent to contractor and decisions on any major questions will be reserved until contractor has been consulted. Subcontractors may accompany contractor to meetings provided the contractor notifies the Owner's Construction Representative in advance.



- B. Chairman - When Owner's Construction Representative/Owner attend meetings, the Owner's Construction Representative, or his duly authorized representative, will act as chairman. Should Owner-Contractor meetings be necessary, Owner will chair such meetings.
- C. Notices - Owner's Construction Representative or Owner will issue notices of meetings to all parties concerned and will note, thereof, who must attend and who may attend if they so desire. When a Contractor desires a formal meeting, make a request through Owner's Construction Representative. Except when Owner's Construction Representative determines that a prompt meeting is essential, all notices will be issued at least one week in advance of the meeting date.
- D. Agenda - All parties shall inform Owner's Construction Representative of items desired to be discussed and Owner's Construction Representative will notify all parties of all items to be considered. This is to allow each party to fully prepare for the meeting. This shall not be construed to mean that other items cannot be brought up at the meetings.
- E. Time Limits - It is the intent to hold productive and efficient meetings and to keep them as short as is reasonably possible. The Chairman will be the sole judge as to whether or not further discussion on any matter is warranted and all discussions shall cease when he so orders.
- F. Minutes - Minutes of meetings will be kept, written and distributed by the Chairman or his duly authorized representative. Minutes of all meetings will be available upon request to the Chairman.
- G. Conduct - It is the intent to conduct all meetings in an orderly manner, to reasonably discuss all items and to hear and observe the rights and opinions of all parties. The Chairman will allow each party to speak, however, he reserves the right to order any individual to leave the meeting at any time for any reason.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section specifies the requirements for preparing construction schedules and for keeping them up to date.
- B. Prepare a Gantt Chart type schedule and keep it up to date as specified hereinafter.
- C. All schedules shall be submitted in accordance with the requirements contained herein in Section 013300.
- D. Refer to Section 013100 regarding the requirements for attendance at Project Coordination Meetings and additional requirements concerning the submission of other project coordination and sequencing information.

1.02 SCHEDULE PREPARATION MILESTONE DATES & REQUIREMENTS

- A. Each Contractor shall prepare Draft #1 Construction Schedule for presentation and discussion during Project Coordination Meeting No. 1.
  - 1. The Architect will provide at least seven (7) calendar days written notice regarding the date of the first meeting.
  - 2. At the Architect's discretion, Project Coordination Meeting No. 1 may immediately take place on the same date and directly following the Pre-Construction Conference. The Notice To Proceed will contain information regarding the Pre-Construction Conference and Project Coordination Meeting No. 1 should it be so decided by the Architect.
  - 3. Draft #1 Construction Schedule shall be prepared as specified hereinafter.
    - a. The schedule shall show all the major and subordinate tasks necessary to complete the project in the specified time and interim milestones.
    - b. It shall allow adequate time for other Prime Contractors to complete their related work as best estimated by the Contractor. It being understood that the Contractor's allotted time for others to perform their work is non-binding and does not relieve the Contractor from completing all the work in the specified contract completion time in accordance with the Contract Documents. It also being understood that this is the Contractor's realistic best estimate of the time needed for others to complete their related work.
    - c. The schedule shall also show the dependencies and time allocated for each task.
  - 4. The date, place, and time for Project Coordination Meeting No. 2 shall be established at the first meeting, but in no case be more than ten (10) calendar days from the date of the first meeting.
- B. As a result of the first meeting, a better understanding of each Contractor's time requirements will have been achieved. Within five (5) working days of the date of *Project Coordination Meeting No. 1*, each Contractor shall prepare Draft #2 Construction Schedule and submit it to the Architect and each other Prime Contractor for review. Each Contractor shall mail his/her schedule to all parties via Overnight Mail with a Return Receipt Requested.
  - 1. *Project Coordination Meeting No. 2* shall be attended by all Prime Contractors for the purpose of jointly developing a Combined Construction Schedule. The meeting shall focus on the time needed to complete each task and subordinate task and for establishing task dependencies.
  - 2. The date, place, and time for *Project Coordination Meeting No. 3* shall be established at the meeting.



### 1.03 CONSTRUCTION SCHEDULE - GENERAL

- A. The Contractor shall develop a full schedule, in sufficient detail and clarity of for and technique so that the contractor can plan and control his work properly and the Owner's Construction Representative, Owner, and Architect can each readily monitor and follow the progress for all portions of the work. The Contractor shall complete the detailed schedule within 10 days after contract award.
- B. In no case shall first application for payment be approved prior to submission of acceptable preliminary schedule, detailed submittal schedule, and schedule of values.
- C. Monthly updates, required schedules and graphics shall be submitted to the Owner's Construction Representative/Owner within five working days following the end of the preceding month. Monthly updates, schedules and graphics shall be submitted in five copies.
- D. If any of the required submissions are returned to the Contractor for corrections or revisions, they shall be resubmitted within ten (10) calendar days after the return mailing date. Re-submittals shall be in the same quantities as noted above. Review and response by the Owner's Construction Representative/Owner will be given within (10) calendar days after resubmission.
- E. The schedule shall comply with the various limits imposed by the scope of work any by any contractually intermediate milestone dates and completion dates included in the contract.
- F. The activities identified in the schedule shall be analyzed in detail to determine activity time durations in units of whole working days. All durations listed shall be the result of definitive manpower and resource planning by the Contractor. The contractor will provide specific manpower loading information / crew size to support the duration proposed. (e.g. - 4 man crew can produce 1000 sq. ft. / day, project has 11,000 sq. ft., thus duration is identified as 11 days)
- G. The activity data shall include activity codes to facilitate selection, sorting and preparation of summary reports and graphics. Activity codes shall be developed for:
  - 1. Area: Subdivision of the site into logical modules or blocks and levels.
  - 2. Responsibility: Contractor or subcontractor responsible for the work.
  - 3. Specifications: CSI format - 48 Division.
  - 4. System: Division of the work into building systems for summary purposes.
  - 5. Milestone: Work associated with completion of interim completion dates or milestones.
  - 6. Pay Item: Work identified with a pay item listed on the approved Schedule of Values.
- H. Coordinate the work and maintain the construction schedule. In the event actual progress begins to lag the schedule, promptly employ additional means and methods of construction to make up the lost time.
- I. Keep the construction schedule current and revise and resubmit as often as necessary to accurately reflect the conditions of the work, past progress and anticipated future progress.
- J. The construction schedule shall be completed, submitted, and deemed received by the Architect prior to the first payment application.
- K. The schedule, when approved by the Owner's Construction Representative, Owner, and Architect, shall establish the dates for starting and completing work for the various portions of the Contract. It shall be the duty of the Contractor to conform to his/her own schedule and to



## CONSTRUCTION SCHEDULE

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perform the work within the time limits indicated. Failure to adhere to the approved schedule may expose the Contractor to disputes, claims and additional costs incurred by others.

- L. Coordinate letting of subcontracts, material purchases, shop drawing submissions, delivery of materials, and sequence of operations, to conform to the schedule.
- M. Coordinate the construction schedule with the proposed schedules of the equipment suppliers and subcontractors.
- N. The schedule shall show the critical sequence items where new units must come online before existing facilities go offline, if applicable to the project. The schedule shall also show, in detail, the proposed sequence of the work and the estimated date of starting and completing each stage of the work in order to complete the project within the contract time.
- O. The schedule shall be plotted out in color and shall be 11-inch by 17-inch. It shall contain as many sheets as are necessary to show all rolled down tasks. Partially printed schedules will not be accepted. Each Contractor shall arrange to have it plotted on a color plotter suitable for the intended application.
- P. Prepare the schedule in a manner so that the actual progress of the work can be recorded and compared with the expected progress.
- Q. The schedule shall use the following convention:
  - 1. Tasks for the General Contractor in blue ink.
  - 2. Task links/task dependency in blue ink.
  - 3. Work by others in green ink.
  - 4. Milestone dates (zero duration) by a red diamond.
  - 5. The end date for each task and subtask at the end of a bar.
  - 6. The description of all major tasks within the bar. The bar shall be red.
  - 7. Critical path.
- R. The construction schedule shall also show the following:
  - 1. Critical sequence items where new units must come on-line before existing facilities go off-line, if applicable to the project.
  - 2. Computer delivery, if so specified elsewhere.
  - 3. Telephone service and high speed internet cable installation.
  - 4. Lead time for control panels that are packaged as systems.

### 1.04 CONSTRUCTION SCHEDULE - GANTT CHART TYPE

- A. The schedule shall show, in detail, the proposed sequence of the work and the estimated date of starting and completing each stage of the work in order to complete the project within the contract time.
- B. Prepare the schedule in a manner so that the actual progress of the work can be recorded and compared with the expected progress.
- C. The schedule shall show the following:
  - 1. Task links/task dependency in blue ink.
  - 2. Work under the Contract in green ink.
  - 3. Milestone dates (zero duration) by a red diamond.
  - 4. The end date for each task and subtask at the end of a bar.
  - 5. The description of all major tasks within the bar. The bar shall be red.



6. Critical path.

1.05 REPORTS

- A. For initial submittal and each update the contractor shall prepare the following standard report:
  - 1. Tabular Schedule Report sorted by Activity code and Early Start.

1.06 GRAPHICS

- A. For initial submittal the contractor shall prepare the following graphics:
  - 1. Pure logic diagram (Precedence Format) of all data, not time scaled, grouped by Activity code.
  - 2. Detailed bar chart sorted by Activity Code with Early Start and Early Finish.
  - 3. Summary bar chart summarizing by Activity Code with Early Start and Early Finish.
- B. For each update the contractor shall prepare the following graphic:
  - 1. Bar Chart showing work activities with Early Start in the next 40 work-days sorted by Activity Code and Early Start.
  - 2. Summary Bar Chart summarizing by Activity Code showing progress with Early Start and Early Finish.
- C. For each Change Order involving adjustment in the contract time for performance, the contractor shall prepare a pure logic diagram showing the changed work with all preceding (predecessors) and succeeding (successors) activities (fragnet schedule).

1.07 SUBMITTALS

- A. In no case shall first application for payment be approved prior to submission of acceptable preliminary schedule, detailed submittal schedule, and schedule of values.
- B. Monthly updates, required schedules and graphics shall be submitted to the Owner's Construction Representative and Owner within five working days following the end of the preceding month. Monthly updates, schedules and graphics shall be submitted in five copies.
- C. If any of the required submissions are returned to the Contractor for corrections or revisions, they shall be resubmitted within ten (10) calendar days after the return mailing date. Resubmittal shall be in the same quantities as noted above. Review and response by the Owner's Construction Representative and Owner will be given within (10) calendar days after resubmission.

1.08 PAYMENT WITHHELD

- A. If the Contractor fails to submit the required schedule information as indicated in this section within the time stipulated or provide revision(s) thereof within the requested time, the Owner and Owner's Construction Representative may withhold approval of Progress Payment Estimates until such time as the Contractor submits the required information.

1.09 REVISION OF PROJECT PROGRESS SCHEDULE

- A. The Contractor shall evaluate and provide updated construction schedules monthly in accordance with job requirements. Each update shall be submitted to the Owner and Owner's Construction Representative for information purposes and be provided by the last Friday of every month



- B. The Contractor shall modify its construction schedule to accommodate coordination of the construction contracts by the Owner/Architect without claims for additional compensation or delay.
- C. The Owner's Construction Representative will provide an electronic version of the Final Combined Construction Schedule for use in keeping the schedule up to date.
- D. From time to time, and at stages deemed appropriate by the Owner's Construction Representative, the Owner may issue updated schedules to reflect the project's status. The percent complete for each task may be shown, as determined by the Owner's Construction Representative.

#### 1.10 UPDATES

- A. Updates of the Schedule shall be made at the end of each month reflecting actual or reasonably anticipated progress as of the last working day of the month. Monthly updates of the Detailed Schedule will be made each month until all work is substantially complete.
- B. The Contractor will meet with the Owner's Construction Representative and Owner at the end of the updated period to review information in draft form before preparation of the required schedules and graphics. The Contractor will present data, prepared in advance, for review and approval of the Owner's Construction Representative and Owner including :
  - 1. Actual Start Dates.
  - 2. Actual Completion Dates.
  - 3. Activity percent complete and/or Remaining Duration.
  - 4. Revised logic, changes in activity duration's or resource assignments.
  - 5. Narrative report discussing progress through the update period; changes, delays or other circumstances affecting progress; status of the project with respect to completion schedule; and any efforts by the Contractor to improve progress.
- C. The update meeting will establish the values to be submitted for payment and will be directly related to the schedule of values in the application for payment.
- D. The Contractor shall prepare a report of the meeting and make all changes, additions or corrections to the data resulting from the review. The contractor shall promptly prepare the monthly submittal following the update meeting.

#### 1.11 CHANGES, DELAYS AND EXTENSIONS OF TIME

- A. When changes or delays are experienced, the Contractor shall submit to the Owner's Construction Representative and Owner, a Time Impact Analysis (TIA) illustrating the influence of each change or delay on the currently scheduled Contract completion date. Each Time Impact Analysis shall include a Fragnet (network analysis) demonstrating how the Contractor proposes to incorporate the change or delay into the Detailed Schedule. Additionally, the analysis shall demonstrate the time impact based on the date the change was given to the Contractor, the status of construction at that point in time, and the activity duration of all affected activities. The activity duration used in this Time Impact Analysis shall be those activities included in the latest update of the Detailed Schedule, closest to the time of delay or as adjusted by mutual agreement.
- B. Each TIA shall be submitted within ten (10) calendar days after a delay occurs or a notice of change order is given to the Contractor. In cases where the Contractor does not submit a TIA



for a specific change or delay with a specified period of time, it shall be mutually agreed that no time extension is required. Final evaluation of each TIA by the Owner's Construction Representative and Owner shall be made within fourteen (14) calendar days after receipt of the TIA unless subsequent meetings and negotiations are necessary. Adjustments in the Contract time for performance shall be made only by written change order approved by the Owner. Upon approval of the Owner, Fragnets illustrating the influence of changes and delays shall be incorporated into the Detailed Schedule by the contractor during the first update after agreement is reached.

- C. The time difference between the Early Finish date and the Late Finish Date is defined as "float." The "float" belongs to the Project and may be used by the Contractor or the Owner's Construction Representative and Owner to benefit the Project. Changes or delays that influence activities in the network with "float" and do not extend the Critical Path (the network of activities with zero days "float") shall not be justification for an adjustment in Contract time for performance.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**END OF SECTION**



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### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. Project record documents shall be prepared as specified herein.
- B. Fence locations shall be staked by the Contractor's surveyor in accordance with the requirements contained in Section 323113.16.

#### 1.02 QUALITY ASSURANCE

- A. The Contractor shall employ a land surveyor licensed in the State where the project is located. The surveyor shall be acceptable to the Architect in terms of experience and qualifications.
  - 1. Submit evidence of the surveyor's errors and omissions (professional liability) insurance coverage in the form of an insurance certificate.
  - 2. The surveyor shall maintain a minimum coverage of \$1,000,000 for professional liability.
  - 3. The Owner, Architect, and Contractor shall be named as insurance certificate holders.
  - 4. A thirty-day cancellation notice shall be provided.
  - 5. Physical work shall not be performed until the certificate is provided and approved by the Owner.
- B. All instruments used on the project shall be of professional quality and in first class condition.
  - 1. All instruments shall have been calibrated by a manufacturer's service station within the last twelve (12) months.
  - 2. Submit certificate of calibration or paid invoice showing that the unit has been calibrated, if so required by the Architect.

#### 1.03 SUBMITTALS FOR REVIEW

- A. Submit name, address, and telephone number of Surveyor before starting survey work.
- B. Surveyor's professional liability insurance certificate.
- C. On request, submit documentation verifying accuracy of survey work.
- D. Submit a copy of the site drawing signed by the land surveyor showing locations of other benchmarks set by the surveyor, baseline location and offset hubs. If requested, the Architect will provide a reproducible drawing or a drawing in digital format for use by the surveyor.

#### 1.04 EXAMINATION

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.

#### 1.05 SURVEY REFERENCE POINTS

- A. The Contractor's surveyor shall locate and protect survey control and reference points located throughout the project site.
- B. Control datum for survey is that indicated on the Drawings or will be provided by the Architect.



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- C. The Contractor shall protect survey control points prior to starting any site work. Preserve permanent reference points during construction.
- D. Promptly report to the Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
  - 1. The surveyor shall replace dislocated survey control points based on original survey control when directed by the Architect.
  - 2. Make no changes without prior written notice to Architect.
- E. The surveyor shall set control lath for rough and final grading purposes. Lath shall be placed at sufficient intervals to control grade or as directed by the Architect.
- F. All new structures, pits, chambers, drainage pools, curbs, roads, swales, and other physical elements shall be located by survey control.
- G. Underground pipelines need not be located using survey control but shall be located using standard survey equipment operated by persons experienced in their operation.

### 1.06 SURVEY REQUIREMENTS

- A. The Architect will provide one (1) benchmark.
- B. The Contractor shall, with his own forces, obtain working or construction lines or grades as needed subject to the check of the surveyor. The surveyor shall set offsets.
- C. Establish elevations, lines, offsets and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements, stakes for grading, curbs, fill and topsoil placement, utility locations, slopes and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, ground floor elevations, and equipment foundations.
- D. Provide tie distances on record drawings to all underground structures, valves, pipes, and utilities installed as work of this Contract.

## PART 2 - PRODUCTS

NOT USED

## PART 3 - EXECUTION

NOT USED

**END OF SECTION**



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### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. This Section specifies the requirements for making submissions for the project. Electronic submissions will be required unless expressly noted otherwise.
- B. Refer to Section 013216 - Construction Schedule for the requirements concerning the submission of construction schedules and for making updates thereto.
- C. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
  - 1. Contractor's construction schedule.
  - 2. Submittal schedule.
  - 3. Daily construction reports.
  - 4. Shop Drawings.
  - 5. Product Data.
  - 6. Samples.
  - 7. Quality assurance submittals.
- D. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
  - 1. Permits.
  - 2. Applications for Payment.
  - 3. Performance and payment bonds.
  - 4. Insurance certificates.
  - 5. List of subcontractors.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 1 Section "Payment Procedures" specifies requirements for submittal of the Schedule of Values.
  - 2. Division 1 Section "Project Management and Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
  - 3. Division 1 Section "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
  - 4. Division 1 Section "Quality Requirements" specifies requirements for submittal of inspection and test reports.
  - 5. Division 1 Section "Execution and Closeout Requirements " specifies requirements for submittal of Project Record Documents and warranties at project closeout.

#### 1.02 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
  - 1. Preparation of Coordination Drawings is specified in Division 1 Section "Project Management and Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.



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- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

### 1.03 IDENTIFICATION OF SUBMITTALS

- A. Each and every submission shall be provided by the Contractor and shall be accompanied by a SUBMISSION TRANSMITTAL FORM. The Contractor shall use the specimen form made a part of this Section. *Submittals not containing the form will be returned to the Contractor un-reviewed.* The Architect will not review project submissions until such time as the form is completed in its entirety. Identify each submittal and resubmittal using the form.
- B. Each individual submittal shall be identified with a 'submission log number' as specified here in this example: 033000.01-1
  - 1. The Section number for which the submittal applies, followed by a period, shall be indicated, "033000."
  - 2. The submittal within the Section shall be indicated by the next grouping "01". For instance and in this example, the concrete design mix may be submission "01", the waterstop catalog cut may be "02", and so on. Submittals shall be sequentially numbered within the Specification Section, i.e. 01, 02, etc.
  - 3. The number of times the submission was made shall be preceded by a dash and a numerical suffix as follows: "-1". In this example, the concrete design mix is being submitted for the first time. Use the number "1" for the first time it is being submitted.
  - 4. Subsequent submissions of the concrete design mix shall utilize the original number and a sequential numeric suffix, i.e. "2" for a resubmission, "3" for the second resubmission, and so on. Substitute the new number for the original "1".
- C. Where a layout drawing, containing different elements of the project, is being submitted and there is a question as to what the log number might be, then the Contractor shall contact the Architect so that an agreed upon log number can be assigned.
- D. It is incumbent on the Contractor to initially assign the submission log number designation to each submission. Submissions not containing a log number, as specified above, will be returned to the Contractor un-reviewed by the Architect.
- E. Every submittal shall also be accompanied by a Transmittal Letter (or "Speed Form") addressed to the Architect's Project Manager as hereinafter defined.

### 1.04 SUBMITTAL SCHEDULE

- A. Submittals must be prepared and transmitted as follows, unless otherwise approved by the Owner's Construction Representative:
  - 1. Within 15 working days after Notice to Proceed:
    - a. Doors & Hardware.
    - b. Finish Floor Samples.
    - c. Electrical fixtures and panels.
    - d. Asbestos Abatement submittals & Plan.
    - e. And all other submittals critical to the schedule.



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2. If the contractor misses the milestone submittal timeframes listed above, the owner / agents can withhold requisition payments until the required paperwork is received. If there are any open submittals beyond 60 days of contract award, the owner may withhold contractor payments until all required paperwork is received.
3. Upon approval by the Owner's Construction Representative, non-critical submissions may be transmitted after the above time frame.
4. Prepare submittals including information in accordance with Submittal Identification and Procedures specified in this section.

### 1.05 COORDINATION OF SUBMITTALS

- A. Prior to submitting to the Owner's Construction Representative, fully coordinate all interrelated work. As a minimum, do the following:
  1. Determine and verify all field dimensions and conditions by field measuring existing conditions and the installed work of this Contract and work by others.
  2. Coordinate with all trades, subcontractors, vendors, system and equipment suppliers and manufacturers, public agencies, and utility companies and secure all necessary approvals, in writing.
- B. Make submittals in groups containing all associated items that in some way depend upon each other.
  1. This also applies to color charts, as one color may not be able to be selected without the selection of other colors so as to form a color-coordinated group.
  2. The Owner's Construction Representative may elect not to review partial or incomplete submissions, whereupon he will notify the Contractor of the additional submissions that are required before a review can be made.

### 1.06 TIMING OF SUBMITTALS

- A. Make submittals far enough in advance of scheduled dates of installation to provide time for reviews, for securing necessary approvals, for possible revisions and re-submittals, and for placing orders and securing delivery. The Architect will review submittals in a manner as expedient as possible, and will generally send a written response to the Contractor within seven (7) calendar days of receipt of submittals.
- B. Submissions may be returned reviewed, unreviewed, rejected, returned conditioned upon submission of related items, or for other reasons set forth in the Contract Documents.
- C. Make submissions well in advance as the returning, rejecting or disapproval of submissions or other similar circumstances are possible and are deemed "avoidable delays". Costs for these delays or those attributed to Contractor's tardiness in making submittals shall be borne by the Contractor.
- D. **All** submittals requiring Owner's Construction Representative's review (except operations manuals) as required under the technical specifications of these documents shall be submitted within **FORTY FIVE (45)** consecutive calendar days after the date of the Notice to Proceed. An amount of **\$250** per calendar day shall be deducted from payment due the Contractor for **each** day that an outstanding submittal exists, said amount being the cost associated with the Owner's Construction Representative's review.
- E. Operation and maintenance manuals shall be submitted at least **FORTY FIVE (45)** consecutive calendar days prior to scheduled startup of the unit or system.



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- F. If material or equipment is installed before it has been deemed to be in general compliance with the Contract Documents, as determined by the Owner's Construction Representative, the Contractor shall be liable for its removal and replacement at no extra charge and without an increase in contract time.

### 1.07 DESTINATION OF SUBMITTALS

- A. Each submission of documents shall be accompanied by a transmittal form containing the name of the project, the contract name, the Architect's project manager, a submittal ID number, and a description of content for the submitted items.
- B. A copy of the TRANSMITTAL FORM shall also be provided to the Owner's Construction Representative's inspector at the job site.
- C. Electronic submittals shall be transmitted through the Newforma® Project Center website; a Submittal Exchange website or by email; pending instruction by the Architect. H2M architects + engineers is using a project information application called Newforma® Project Center. One of its components is Newforma Info Exchange, a web application that facilitates sending and sharing transmittals, and file sharing.
- D. As an external team member on this project the Contractor will be required to access the H2M architects + engineers/Newforma Info Exchange website for information related to the project, including file transfers, RFI, Submittals, Action Items, and project Calendar information. The Contractor will have access to this website using any internet-capable computer running Internet Explorer or Firefox. All data transmitted through the H2M architects + engineers/Newforma Info Exchange website is encrypted and logged. Further instructions will be provided to the Contractor after the contract is awarded.
- E. Other submissions, such as material samples or other items as instructed by the Owner's Construction Representative, shall be sent to the Architect's office as follows:  
H2M architects + engineers  
2700 Westchester Avenue, Suite 415, Purchase, New York 10577

**Attention: H2M Project Manager (Named at Pre-Construction Conference or in the Notice to Proceed)**

### 1.08 CLARITY OF SUBMITTALS

- A. All printed materials shall be neat, clean, professionally drafted by hand or by computer, clear, legible, and of such quality that they can be easily reproduced by normal photocopying or wide format copy/print machines.
- B. All electronic submittals shall be produced with a minimum resolution of 300 dpi.
- C. Binders of information shall be separated into groups, subsystems, or similar equipment/function. Copies not conforming to this paragraph will be returned to the Contractor without the Owner's Construction Representative's review.

### 1.09 CONTRACTOR'S REPRESENTATION

- A. By making a submission, the Contractor represents that he has determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms



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of limitations in moving equipment into an enclosed space, materials, catalog and model numbers and similar data and that he has checked and coordinated each submission with other work at or adjacent to the project site in accordance with the requirements contained in Section 013100 - PROJECT MANAGEMENT AND COORDINATION and the Contract Documents.

- B. Every SUBMISSION TRANSMITTAL FORM shall contain the Contractor's approval stamp and date showing that the submittal has been approved by the Contractor. The Owner's Construction Representative will not review submittals that have not yet been reviewed and approved by the Contractor.

### 1.10 ENGINEER/ARCHITECT'S REVIEW

- A. Owner's Construction Representative will review and comment on each submission conforming to the requirements of this Section.
  - 1. Architect's review will be for conformance with the design concept of the project and will be confined to general arrangement and compliance with the Contract Documents only, and will not be for the purpose of checking dimensions, weights, clearances, fittings, laying lengths, tolerances, interference's, for coordinating the work by others or subcontractors.
  - 2. The Architect's review of a separate item, or portion of a system, does not represent a review of an assembly or system in which the item functions.
- B. The Architect will mark submittals as follows:
  - 1. NO EXCEPTION TAKEN (A) - No corrections, no marks. The content of this submittal has been reviewed by the Architect and been found to be in general compliance with the Contract Documents. No further submission of this submittal is required and the information contained in the submittal may be built into the work in accordance with the Contract Documents.
  - 2. MAKE CORRECTIONS NOTED (B) - Minor amount of corrections. The content of this submittal has been reviewed by the Architect and has been found in general to be in compliance with the Contract Documents. The notations made on the submittal by the Architect shall be incorporated into the work in accordance with the terms and conditions of the Contract Documents. No further submission of this submittal is required.
  - 3. AMEND AND RESUBMIT (C) - The content of this submittal has been reviewed by the Architect and this review has determined that additional data and/or modification to the submitted data or other changes are required to bring the work represented in this submittal into compliance with the Contract Documents. This submittal shall be reviewed and revised in accordance with the Architect's comments and resubmitted to the Architect for review. The information contained on the resubmittal shall not be incorporated into the work until the submittal is returned to the Contractor marked "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED".
  - 4. REJECTED (D) - The content of this submittal has been reviewed by the Architect and has been determined not to be in accordance with the requirements contained in the Contract Document and requires too many corrections or other justifiable reason. The submittal shall be corrected and resubmitted or a submittal of an alternate shall be provided. No items are to be fabricated under this mark.
  - 5. SUBMIT SPECIFIED ITEM (E) - The content of this submittal has been reviewed by the Architect and this review has indicated that the work displayed in the submittal is not in compliance with the Contract Documents. The Contractor shall submit another submittal for this portion of the work, which complies with the Contract Documents.
  - 6. RECEIVED (R) - This submittal is accepted on the project and filed for record purposes only, in accordance with the terms and conditions of the Contract Documents. Documents marked "RECEIVED" will not be returned.



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- C. No payment will be made on any item for which a submission is required if such submission:
  - 1. has not been made,
  - 2. has been made but was not stamped "No Exceptions Taken" by Architect,
  - 3. has been made and stamped "Make Corrections Noted", but contractor has not complied with Architect's notes marked on the submittal,
  - 4. has been made and stamped "No Exceptions Taken", but item provided does not conform to the shop drawing nor to the Contract Documents.
- D. Submittals not required by these specifications will not be recognized or processed.
- E. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals.
  - 1. Allow between 10 and 15 business days for initial review of the first round of submittals. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals.
  - 2. If an intermediate submittal is necessary, process the same as the initial submittal. Allow an additional 10 business days for processing each submittal.
  - 3. No extension of Contract Time will be authorized because of contractor's failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

### 1.11 RESUBMISSIONS

- A. Prepare new and additional submissions, make required corrections, and resubmit corrected copies until found in compliance with the Contract Documents.
- B. On, or with, re-submittals, clearly describe revisions and changes made, other than the corrections requested by Architect, which did not appear on the previous submissions.

### 1.12 CONTRACTOR'S RESPONSIBILITIES

- A. Architect's review of submittals shall not relieve the Contractor of his/her responsibility for any deviation from the requirements of the Contract Documents nor relieve the Contractor from responsibility for errors or omissions in the submittals.
- B. No portion of the work requiring a submission shall be commenced until the Architect has found the submission in general compliance with the Contract Documents.
- C. The Contractor shall provide written notification of any specification or drawing deviation.

### 1.13 EXCESS COSTS FOR ENGINEERING/ARCHITECTURAL SERVICES

- A. The Owner will charge to the Contractor, and will deduct from the partial and final payments due the Contractor, all excess engineering and architectural expenses incurred by the Owner for extra services (work) conducted or undertaken by the Architect as stipulated below:
  - 1. Services and other similar charges because of the Contractor's errors, omissions, or failures to conform to the requirements of the Contract Documents as related to administrative charges associated with non-compliance with the requirements for making project submissions.
  - 2. Services and other similar charges required to examine and evaluate any changes or alternates proposed by the Contractor and which may vary from the Contract Documents.



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3. Services and other similar charges as a result of the Contractor's proposed substitution of materials, equipment or products which require a redesign of any portion of the project, as contained in the Contract Documents at the time of bid.
4. Services and other similar charges as a result of the Contractor's proposed substitution of products which require an engineering and/or architectural evaluation, beyond the time stipulated in Section 012500 - PRODUCT SUBSTITUTION PROCEDURES, to determine if the substituted product is equal to that specified.
5. Services and other similar charges as a result of changes by the Contractor to dimensions, weights, sizes, voltages, phase, horsepower, materials of construction, and similar physical or operating characteristics of the product furnished which require redesign of the project in any way.
6. Services and other similar charges for the review of resubmissions of shop drawings that have been marked as "No Exceptions Taken" or "Make Corrections Noted".
7. Services and other similar charges for the review of shop drawings submitted more than two (2) times for the same product or portion of the work.

### 1.14 MISCELLANEOUS SUBMITTALS

- A. Provide a Submittal Schedule within seven (7) calendar days from the date of the Notice to Proceed. The Submittal Schedule shall list all submittals for the project referenced by draft log number. Provide the estimated date that the submittal will be transmitted to the Architect for review.
- B. Within seven (7) calendar days from the date of the Pre-Construction Meeting, submit a Proposed Products List. This list shall be a complete listing of all products proposed for use, with name of manufacturer, service headquarters, trade name and model number of each product. Partial listings will not be accepted.
- C. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

### 1.15 SUBCONTRACTOR LIST

- A. The Contractor shall submit, on AIA Form G705, within FIFTEEN (15) calendar days after the date of the Notice to Proceed, a list of all subcontractors, including the names of the major subcontractors that were submitted at the time of the bid.
- B. Indicate M/WBE subcontractors in accordance with the requirements contained in other portions of the Project Manual.

### 1.16 MATERIAL SAFETY DATA SHEETS (MSDS)

- A. Comply with "Right to Know" requirements of Chapter 551 of Laws of New York, 1980, concerning notification of the use of toxic substances.
- B. Any product or substance used by the Contractor or its subcontractors which is listed in Subpart Z of OSHA Part 1910 Title 29 of the Code of Federal Regulations entitled "Toxic and Hazardous Substances" shall be identified to the Owner/Architect by the Contractor's submission of a standard Material Safety Data Sheet (MSDS) in accordance with "Right To Know" requirements.
- C. Products will not be permitted to be kept on site without a MSDS.



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Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

### 1.17 SHOP DRAWINGS

- A. Submit shop drawings for all fabricated work, for all manufactured items and for items specifically required by the specifications.
- B. Submit one (1) electronic copy of each standard drawing, catalog cut, or other material. All shop drawings or submittals that are not in the standard 8-1/2" x 11" format shall be submitted electronically and in paper. Samples shall be delivered directly to the office of the Architect. The Architect will return an electronic copy of each submittal once reviewed.
- C. Subcontractors shall submit shop drawings directly to the Contractor for checking. Thoroughly check subcontractors' shop drawings for measurements, sizes of members, details, materials, and conformance with the Contract Documents.
  - 1. Return submittals which are found to be inaccurate or in error.
  - 2. Do not submit to the Architect until all corrections have been made.
- D. Clearly show the relationship of the various parts of the project and where the information provided on the submission depends upon field measurements and existing conditions.
- E. The Contractor shall make all measurements, confirm existing conditions, and include them on the shop drawings before making a submission to the Architect.
- F. Submissions for a single item, or group of related items shall be complete.
- G. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
- H. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
- I. When submitting manufacturers' catalogs, pamphlets or other data sheets, in lieu of prepared shop drawings, clearly mark the items being submitted for review.
- J. If the shop drawings contain any departures from the contract requirements, specifically describe them in the letter of transmittal.
  - 1. Where such departures require revisions to layouts, structural, architectural, electrical, HVAC or any other changes to the work as shown, Contractor shall, at his own expense, prepare and submit revised drawings accordingly.
  - 2. Make drawings the same size as the Contract Drawings and to the same scale.
- K. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- L. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
  - 1. Dimensions.
  - 2. Identification of products and materials included by sheet and detail number.
  - 3. Compliance with specified standards.
  - 4. Notation of coordination requirements.
  - 5. Notation of dimensions established by field measurement.



## SUBMITTALS

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6. Sheet Size: Except for templates, patterns and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 inches by 11 inches but no larger than 36 inches by 48 inches.
7. All Technical Submittals.

### 1.18 SAMPLES

- A. Where required, or where requested by the Architect, submit sample or test specimens of materials to be used or offered for use.
  1. Samples shall be representative, in all respects, of the material offered or intended, shall be supplied in such quantities and sizes as may be required for proper examination and tests, and shall be delivered to Architect, prepaid, along with identification as to their sources and types of grades.
  2. Submit samples well in advance of anticipated use to permit the making of tests or examinations.
- B. Samples will be checked for conformance with the design and for compliance with the Contract Documents.
- C. Work shall be in accordance with the approved sample. The use of materials or equipment for which samples are requested or required to be submitted is not permitted until such time that the Architect has completed his review.

### 1.19 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation. Provide manufacturer's instructions with shop drawings.

### 1.20 CERTIFICATIONS

- A. Submit certifications of compliance indicated in the Contract Documents.
- B. Certifications shall be complete and exact, they shall be properly authenticated by the written signature, in ink, of an owner, officer or duly authorized representative of the person, firm or organization issuing such certification and they shall guarantee that the materials or equipment are in complete conformance with the requirements of these specifications.

### 1.21 COLORS AND PATTERNS

- A. Unless the precise color and pattern are specified, whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts for Architect's and Owner's review and selection.

### 1.22 MANUFACTURER'S SERVICE CENTER

- A. The product of a manufacturer who does not maintain an adequate nearby service center and a sufficient stock of spare parts are subject to rejection by Architect solely on that basis.



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- B. With each submission, submit information on manufacturer's facilities and give complete details of his service policies and capabilities, and a general idea of the stock of spare parts available. Submit this information in the form of a certification. Also include names, addresses and telephone numbers of at least three of the service center's present customers who are in the area of the project.

### 1.23 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Distribution: It is the contractor's responsibility to coordinate submittals with each subcontracting trade. Each contractor shall be required to provide their subcontractors with a complete list of their submittals in order that other contractors can request required submittal information.
  - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

### 1.24 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit one copy to the Architect and one copy to the Owner's Construction Representative by 10:00 a.m. the following day. Any contractor not submitting required reports will not receive approval in the subsequent application for payment until such time that all required information is submitted
  - 1. List of subcontractors at the site.
  - 2. Count of personnel at the site (substantiates payroll).
  - 3. High and low temperatures, general weather conditions.
  - 4. Accidents and unusual events.
  - 5. Meetings and significant decisions.
  - 6. Stoppages, delays, shortages, and losses.
  - 7. Meter readings and similar recordings.
  - 8. Emergency procedures.
  - 9. Orders and requests of governing authorities.
  - 10. Change Orders received, implemented.
  - 11. Services connected, disconnected.
  - 12. Equipment or system tests and startups.
  - 13. Partial Completions, occupancies.
  - 14. Substantial Completions authorized.

### 1.25 TEST RESULTS AND INSTALLATION

- A. Whenever field startup services are specified, the Contractor shall obtain from the manufacturer and submit to the Architect Manufacturer Startup Reports (MSR's). The report shall detail the results of the field visit and all special conditions resulting from the startup.
- B. Whenever field or factory tests are required on materials, equipment and systems, such tests shall be performed and the test results submitted to Architect in the form of a MSR.
- C. Do not deliver to the project or incorporate into the work any materials or equipment for which Architect has not completed his review and found same to be in general conformance with the Contract Documents.
- D. Submit MSR's within thirty (30) calendar days after the date of the startup or factory test.



1.26 SPARE PARTS LIST

- A. Prepare a list of all spare parts specified to be provided in other Sections. Compile the total list for the purposes of reviewing actual spare parts delivered versus spare parts specified to be provided. The list shall reference the Section, model number, and quantity to be provided.

1.27 WAIVER OF CERTAIN SUBMITTAL REQUIREMENTS

- A. Unless otherwise specified, the requirement to submit data and samples for products specified for approval will be waived for products specified by brand name if the specifically named products are furnished for the work. In such cases, the Contractor shall submit two (2) copies of required Product Data directly to the Architect's field representative for information and verification during its incorporation into the work. The SUBMISSION TRANSMITTAL FORM shall always be used.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

THIS SPACE LEFT INTENTIONALLY BLANK



SUBMITTALS  
 Irvington Union Free School District  
 Innovation Suite at Dows Lane Elementary School  
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 SED No.: 66-04-02-02-0-002-021

**H2M**

CONTRACTOR'S COMPANY NAME  
 ADDRESS

**SUBMISSION TRANSMITTAL FORM**

**CLIENT NAME:** Irvington Union Free School District  
**PROJECT TITLE:** Innovation Suite at Dows Lane Elementary School

**H2M PROJECT NO.:** IRSD2003

Product, Item, or System Submitted:			
Submission Date:		Submission Log No.:	
Specification Section:		Paragraph Reference:	
Contract Drawing Reference(s):			
Manufacturer's Name:			
Manufacturer's Mailing Address:			
Manufacturer's Contact Information:	<i>Name</i>	(    ) <i>Tel. no.</i>	<i>Email</i>
Supplier's Name:			
Supplier's Mailing Address:			
Supplier's Contact Information:	<i>Name</i>	(    ) <i>Tel. no.</i>	<i>Email</i>
This item is a substitution for the specified item:	____ No		____ Yes
Contractor's Approval Stamp with Signature & Date	<u>Contractor's Brief Comments or Remarks</u> (attach separate letter as needed):		
	By making this submission, we represent that we have determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving the item into the enclosed space, materials, catalog and model numbers and similar data and that we have checked and coordinated this submission with other work at or adjacent to the installed location in accordance with the requirements contained in the Contract Documents.		



SUBMITTALS

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**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. Codes
- B. Governing agencies
- C. Permits

### 1.02 CODES

- A. Comply with the requirements of the various codes referred to in these Specifications. Such codes shall be the date of the latest revision in effect at the time of receiving bids.
- B. If there is a conflict between local, state, and/or Federal regulatory requirements, seek a consultation with the State Department of Labor. Resolve conflicts to the satisfaction of the State Department of Labor prior to commencing work.
- C. Electrical Work: Conform to the requirements of the National Electrical Code (NEC) unless otherwise shown or specified. The Owner will be the sole judge of the interpretation of these rules and requirements.

### 1.03 GOVERNING AGENCIES

- A. All work shall conform to and be performed in strict accordance with all governing agencies such as, but not limited to:
  - 1. Occupational Safety and Health Act - OSHA
  - 2. State Department of Environmental Conservation
  - 3. State Building Code
  - 4. State Fire Code
  - 5. National Fire Protection Association - NFPA
  - 6. National Electrical Code
  - 7. State Plumbing Code
  - 8. New York State Energy Code
  - 9. County Department of Health
  - 10. Town Codes, Rules, Laws and Ordinances
  - 11. Sewer District Sewer Use Code
  - 12. Local Water District
  - 13. Electric Utility
  - 14. Gas Utility
  - 15. State Education Department

### 1.04 PERMITS AND INSPECTIONS

- A. Representatives of the Owner shall have access to the work for inspection purposes. The Contractor shall provide facilities suitable to the Owner to facilitate inspections of the installed work.
- B. Obtain and pay for all permits, fees, licenses, certificates, inspections and other use charges required in connection with the work.
- C. Such permits include, but are not limited to:



1. Transportation and disposal of construction debris
2. Building permits that are required by the municipality where the work is located. Arrange for inspections of the work by the municipal building department before closing in the installed work, if so required. Work will not be accepted for payment until such inspections are performed and accepted by the building department.

D. Obtain a New York Board of Fire Underwriters inspection and certificate.

E. The following permits and/or certifications will be obtained by the Owner from the appropriate permitting agencies:

- 1.

#### 1.05 NOISE CONTROL

A. Control noise in accordance with Town and OSHA requirements.

#### 1.06 PERFORMANCE BONDS

A. The Contractor shall obtain, pay for and submit all bonds required in connection with the work.

#### 1.07 LISTINGS

A. Equipment and materials for which Underwriters' Laboratories, Inc. (UL) provides product listing service, shall be listed and bear the listing mark. Alternately, ETL Testing Laboratories, Inc. Product Safety Testing Listing is acceptable if the listed product has been tested to the applicable UL Standard.

#### 1.08 FIRE RESISTANT CONSTRUCTION MATERIALS AND ASSEMBLIES

- A. Conform to the fire rating classifications based upon the test methods and acceptance criteria in the Standard, Fire Tests of Building Construction and Materials for which Underwriters' Laboratories, Inc. (UL) provides listings.
- B. Materials and assemblies shall comply with the acceptance criteria, detailed description of the assembly, its performance in the fire test and other pertinent details such as specification of materials, Classification coverage, and alternate assembly details.
- C. Alternatively, fire resistance rating classifications by other issuing organizations listed in the Fire and Building Codes are acceptable.

#### 1.09 UTILITY WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY

A. Utility Work, either overhead or underground, within the boundaries of the state highway right-of-way, shall conform with procedures set forth in the Department of Transportation publications "Department Rules and Regulations Governing the Accommodation of Utilities Within State Highway Right-of-Way (Part 131 - Title 17 Transportation) and "Issuance of Highway Work Permits" (Code 7.12-2).



REGULATORY REQUIREMENTS  
Irvington Union Free School District  
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PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 ABBREVIATED SUMMARY

- A. This Section explains the format of the specifications.

### 1.02 SPECIFICATION FORMAT

- A. The Specifications are generally arranged according to the Construction Specifications Institute (CSI) format. Most of the technical requirements are specified in the technical specifications of the document, which are grouped into forty-eight (48) major divisions. Most of the legal and administrative requirements are included in Division 01, General Conditions, Information For Bidders, and the Contract (agreement).
- B. Technical sections are arranged in numerical order, however section numbers may not be consecutive from section to section.
- C. Page numbering is subordinate to each section.
- D. Most sections are generally broken down into three (3) parts:
  - 1. PART 1 - GENERAL
  - 2. PART 2 - PRODUCTS
  - 3. PART 3 - EXECUTION
- E. Not all these parts may be used and in some cases, the title of some of the parts may be different than listed above. Paragraph numbers are subordinate to each part.
- F. The Contractor is advised that the format described here is flexible in nature.
  - 1. There is some overlapping of specified information between various portions of the Specifications.
  - 2. In all cases, the entire requirements of the Contract Documents for the project shall apply.
- G. Explanations:
  - 1. Many technical sections begin with a paragraph titled "SECTION INCLUDES", "DESCRIPTION", or similar wording.
    - a. In these paragraphs, a brief listing of the specified products may appear or a brief description of the work generally specified in that section is presented.
    - b. These descriptions or listings are not all inclusive, but merely are provided as an aid in locating subject matter.
    - c. In some cases special cost related items of work are called to the attention of the Contractor in these opening paragraphs.
  - 2. "RELATED SECTIONS" or "RELATED WORK" or similar wording paragraphs list or reference related work specified elsewhere in the Contract Documents. Such listing is not all inclusive, rather, they are merely an aid to the Contractor in locating some of the other



Specification Sections wherein work is specified which has a particularly close interrelationship with the work specified in that section.

- a. It shall be understood that all of the Work, and all of the Specifications and other portions of the Contract Documents, are interrelated, and that the total of all requirements set forth in all of the Contract Documents shall be met.
  - b. Equipment suppliers and manufacturers shall be advised of the requirements for making submittals and delivering products, as specified in Division 1 sections, even if said sections are not referenced therein that section.
3. "REGULATORY REQUIREMENTS" or "REFERENCES" or similar wording paragraphs describe standards, laws, guidelines, regulations, and standards related to workmanship and installation of the products specified which shall be followed by the Contractor in completing the work specified therein that section as if it was written there in that section. All such requirements and references shall be latest issue in effect at the time of the bid opening.
  4. When a "GUARANTEE" or "WARRANTY" paragraph appears in the section it is calling attention to a guarantee which extends beyond the period of the Contractor's Guarantee called for in the administrative portion of the Contract Documents or it states special requirements specific to the equipment, systems or products specified in that section.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**END OF SECTION**



**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Work of this Section includes the requirements for pre-installation meetings.

**1.02 PRE-INSTALLATION MEETINGS**

- A. As required in individual specification sections, the Contractor shall convene a pre-installation meeting at the site prior to commencing work of the section.
- B. Pre-installation meetings are to be convened at least one week prior to commencing work on the section. The contractor shall arrange and require attendance of Owner's Construction Representative, Owner, and Architect and parties directly affecting, or affected by, work of the specific section.
  - 1. At least seven (7) calendar days advance notice is to be given.
  - 2. The contractor shall prepare agenda and preside at meeting. At a minimum the following items are to be discussed:
  - 3. Review conditions of installation, preparation and installation procedures.
  - 4. Review coordination with related work.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**END OF SECTION**



**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Requirements for monitoring the quality of the constructed project.
- B. Work of this Section also includes services of an independent testing laboratory for quality assurance testing.

**1.02 REFERENCES**

- A. ASTM C1077 - Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
- B. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- C. ASTM D4561 - Practice for Quality Control Systems for an Inspection and Testing Agency for Bituminous Paving Materials.
- D. ASTM E699 - Practice for Criteria for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating Building Components in Accordance with Test Methods Promulgated by ASTM Committee E6.

**1.03 QUALITY ASSURANCE - CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or workmanship that is more precise.
- C. Perform work by persons qualified to produce workmanship of specified quality.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
- E. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

**1.04 MOCK-UP**

- A. Tests will be performed under provisions identified in this Section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashing, seals, and finishes.
- C. Accepted mock-ups shall be a comparison standard for the remaining work.



- D. Where a mock-up has been accepted by the Architect and is specified to be removed, then the Contractor shall remove the mock-up and the clear area when directed to do so by the Architect.

#### 1.05 QUALITY ASSURANCE - TESTING LABORATORY

- A. In order to establish compliance with the Contract Documents, materials shall be tested, examined and evaluated before they are incorporated into the work. During and after installations, additional tests, examinations, and evaluations shall be made to determine continued compliance throughout the course of the work.
- B. Testing laboratory shall be a reputable, experienced firm that is capable of performing all of the required testing and authorized to operate in the state in which the project is located.
- C. Perform all sampling and testing in accordance with specified procedures and use the materials, instruments, apparatus, and equipment required by the codes, regulations and standards. Where specific testing requirements or procedures are not described, perform the testing in accordance with all pertinent codes and regulations and with recognized standards for testing.
- D. In the event that samples and test specimens are not properly taken, handled, stored or delivered or if other requirements of this Section are not complied with, Architect reserves the right to delegate any or all of this work to others, or to take whatever action deemed necessary to ensure that sampling and testing are properly accomplished, for which all costs shall be borne by Contractor.
- E. Architect reserves the right to disapprove the use of a specific testing laboratory, even after prior approval, if the laboratory fails to meet or comply with the requirements of this Section. If this should occur, immediately discharge the testing laboratory and retain the services of a different laboratory acceptable to Architect.
- F. The testing laboratory shall meet the following criteria:
  - 1. Be capable of performing all of the required tests.
  - 2. Be regularly engaged in performing the types of services required.
  - 3. Have adequate facilities, materials, equipment, and personnel to perform the services.
  - 4. Have an adequately trained, experienced and qualified staff.
  - 5. Have at least one registered professional engineer licensed in the state in which the project is located who shall be capable of performing field tests, supervising laboratory testing and interpreting test results. The professional engineer shall be thoroughly knowledgeable in materials, soils, asphalt paving and concrete.
  - 6. Shall be able to be on the Project site within two hours after being notified.
  - 7. Comply with the requirements of ASTM C1077, ASTM D3740, ASTM D4561, ASTM E548 and ASTM E699.
  - 8. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

#### 1.06 REFERENCE STANDARDS

- A. Conform to reference standards by date that the project was last bid.
- B. Obtain copies of standards when required by Contract Documents.



- C. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

#### 1.07 SCHEDULING - LABORATORY SERVICES

- A. Except where otherwise specified, the Architect will determine the number of samples to be taken, the date and time samples will be taken and tests made, the number and type of tests to be performed, who will collect the samples, how they will be handled and stored and when laboratory personnel are required on site.
- B. Architect will notify Contractor of his/her decision to take samples and/or have tests made and provide him with the pertinent information. Contractor is responsible for notifying the testing laboratory and for having the testing performed, on schedule.
- C. In addition to the above, Contractor shall make his own arrangements for the sampling and testing of materials he proposes to incorporate into the work. This shall not be paid for out of the cash allowance.
- D. Notify Architect at least 72 hours in advance of the times at which scheduled samples or tests will be conducted.
- E. If samples and/or tests cannot be taken or performed when required, delay the work until such time that they can be accomplished. Where possible, any work that has been installed but has not been sampled or tested as required, shall be tested by other means. Upon Architect's request, uncover any work, which has been buried or covered, and perform special tests designated by Architect. If the work cannot be tested by other means, Architect may declare the work unacceptable. All costs associated with noncompliance and for special testing shall be borne by the Contractor and not be paid for out of the cash allowance.
- F. Should the testing laboratory be scheduled to take or collect samples or to perform tests, and finds that it is unable to do so as a result of delays in construction, inclement weather, or any other reason, reschedule the tasks for a date acceptable to Architect. Costs associated with times testing laboratory is unable to perform scheduled services shall be borne by the Contractor and will not be paid for under the allowance.
- G. Plan all work and operations to allow for the taking and collection of samples and allow adequate time for the performance of tests. Delay the progress of questionable work until the receipt of the certified test reports.

#### 1.08 FIELD OBSERVATION OF CONTRACTOR'S WORK

- A. The Architect will provide periodic observation of the Contractor's work.



**PART 2 - PRODUCTS**

**NOT USED**

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions. Verify that the existing substrate is capable of structural support or attachment of new Work being applied or attached. Examine and verify specific conditions described in individual specification sections. Verify that utility services are available, of the correct characteristics, and in the correct locations.

**3.02 PREPARATION**


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

**3.03 FIELD QUALITY CONTROL**

- A. Allow representatives of the testing laboratory access to the work at all time. Provide all equipment, labor, materials, and facilities required by the laboratory to properly perform its functions. Cooperate with and assist laboratory personnel during the performance of their work.
- B. Test specimens and samples shall be taken by the person(s) designated in other Sections, or as directed by Architect. Conduct field sampling and testing in the presence of Architect. Provide all materials, equipment, facilities and labor for securing samples and test specimens and for performing all field-testing.

**END OF SECTION**



 <b>NYS EDUCATION DEPARTMENT</b> <b>Office of Facilities Planning</b> <b>89 Washington Avenue, Room 1060 EBA</b> <b>Albany, NY 12234</b>	<b>STATEMENT OF SPECIAL INSPECTIONS AND TESTS</b> As required by the Building Code of NYS (BCNYS)
BCNYS § 1704.1.1 requires the project Design Professional to complete the Statement of Special Inspections and Tests. Completion of the Statement of Special Inspections & Tests and submission to the Office of Facilities Planning with the Construction Permit Application is a condition for issuance of the Building Permit.	
School District Irvington Schoold District	Building Dow's Lane Elementary
Project Title Dows Lane Elementary Innovation Suite	
SED Project # 66-04-02-02-0-002-021	Project Address 6 Dows Lane, Irvington NY
Architect/Engineer H2M	
Name of Person Completing this Statement Scott Lehn, PE	Phone 631-756-8000
Date 5/5/2021	
Comments	

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
<b>A. Steel Construction</b>						
1. Material verification of high-strength bolts, nuts and washers.		X	Applicable ASTM material specifications. AISC 360, Section A3.3	1704.3	<input type="checkbox"/>	
2. Inspection of high-strength bolting.	X	X	AISC 360, Section M2.5	1704.3, 1704.3.3	<input type="checkbox"/>	
3. Material verification of structural steel.			ASTM A 6 or A 568	1704.3, 1708.4	<input checked="" type="checkbox"/>	55000
4. Material verification of weld filler materials.			AISC 360, Section A3.5	1704.3	<input checked="" type="checkbox"/>	55000
5. Inspection of welding:				1704.3	<input type="checkbox"/>	
a. Structural steel	X	X	AWS D1.1, D1.3	1704.3, 1704.3.1	<input type="checkbox"/>	
b. Reinforcing steel	X	X	AWS D1.4; ACI 318: 3.5.2	1704.3	<input type="checkbox"/>	
6. Inspection of steel frame joint details.		X		1704.3, 1704.3.2	<input type="checkbox"/>	
<b>B. Concrete Construction</b>						
1. Inspection of reinforcing steel, including prestressing tendons, and placement.		X	ACI 318: 3.5, 7.1-7.7	1704.4, 1913.4	<input type="checkbox"/>	
2. Inspection of reinforcing steel welding.			AWS D1.4; ACI 318: 3.5.2	1704.4	<input type="checkbox"/>	



INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
3. Inspection of bolts to be installed in concrete prior to and during placement.	X			1704.4	<input type="checkbox"/>	
4. Verify use of required design mix.		X	ACI 318: Ch. 4, 5.2-5.4	1704.4, 1904.2.2, 1913.2, 1913.3	<input type="checkbox"/>	
5. Sampling fresh concrete: slump, air content, temperature, strength test specimens.	X		ASTM C 172, C 31; ACI 318: 5.6, 5.8	1704.4, 1913.10	<input type="checkbox"/>	
6. Inspection of placement for proper application techniques.	X		ACI, 318: 5.9, 5.10	1704.4, 1913.6, 1913.7, 1913.8	<input type="checkbox"/>	
7. Inspection for maintenance of specified curing temperature and techniques.		X	ACI, 318: 5.11 - 5.13	1704.4, 1913.9	<input type="checkbox"/>	
8. Inspection of prestressed concrete.	X		ACI 318: 18.18.4, 18.20	1704.4	<input type="checkbox"/>	
9. Erection of precast concrete members.		X	ACI 318: Ch. 16	1704.4	<input type="checkbox"/>	
10. Verification of in-situ concrete strength prior to stressing of tendons and prior to removal of shores and forms from beams and slabs.		X	ACI 318: 6.2	1704.4	<input type="checkbox"/>	
11. Inspection of formwork		X	ACI 318: 6.1.1		<input type="checkbox"/>	
<b>C. Masonry Construction</b>						
L1 = Level 1 Inspection required for nonessential facilities.			ACI 530/ ASCE 5/TMS 402, Ch. 35	ACI 530.1/ ASCE 6/TMS 602, Ch. 35	<input type="checkbox"/>	
L2 = Level 2 Inspection required for essential facilities. In general, schools are not considered essential facilities unless they are a designated emergency shelter			ACI 530/ ASCE 5/TMS 402, Ch. 35	ACI 530.1/ ASCE 6/TMS 602, Ch. 35	<input type="checkbox"/>	



INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
1. Verify to ensure compliance:						
a. Proportions of site prepared mortar and grout.		L1 & L2		2.6A	1704.5	<input checked="" type="checkbox"/> 42200
b. Placement of masonry units and construction of mortar joints.		L1 & L2		3.3B	1704.5	<input checked="" type="checkbox"/> 42200
c. Location and placement of reinforcement, connectors, tendons, anchorages.		L1	Sec. 1.13	3.4, 3.6A	1704.5	<input type="checkbox"/>
		L2		3.4, 3.6A	1704.5	<input type="checkbox"/>
d. Prestressing technique.		L1		3.6B	1704.5	<input type="checkbox"/>
Grout space prior to grouting.	L2			3.2D	1704.5	<input type="checkbox"/>
e. Grade and size of prestressing tendons and anchorages.		L1		2.4B, 2.4H	1704.5	<input type="checkbox"/>
Placement of grout.	L2			3.5	1704.5	<input type="checkbox"/>
f. Grout specs prior to grouting.	L2			3.6 C	1704.5	<input type="checkbox"/>
2. Inspection program shall verify:						
a. Size and location of structural elements.		L1 & L2		3.3G	1704.5	<input type="checkbox"/>
b. Type, size, and location of anchors.	L2	L1	Sec. 1.2.2(e), 2.1.4, 3.1.6		1704.5	<input type="checkbox"/>
c. Specified size, grade, and type of reinforcement.		L1 & L2	Sec. 1.13	2.4, 3.4	1704.5	<input type="checkbox"/>
d. Welding of reinforcing bars.	L1 & L2		2.1.7.10.2, 3.3.3.4(b)		1704.5	<input type="checkbox"/>
e. Cold/hot weather protection of masonry construction.		L1 & L2		1.8C, 1.8D	1704.5, 2104.3, 2104.4	<input type="checkbox"/>
f. Prestressing force measurement and application.	L2	L1		3.6B	1704.5	<input type="checkbox"/>
3. Verification prior to grouting.	L2	L1	1.13	3.2D, 3.4, 2.6B, 3.3B 1.4	1704.5 1704.5, 2105.2.2, 2105.3	<input type="checkbox"/> <input type="checkbox"/>
4. Grout placement.	L1			3.5, 3.6C	1704.5	<input type="checkbox"/>



INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
5. Preparation of grout specimens, mortar specimens, and/or prisms.	L1 & L2		1.4	1704.5, 2105.2.2, 2105.3	<input type="checkbox"/>	
6. Compliance with documents and submittals.		L1 & L2	1.5	1704.5	<input type="checkbox"/>	
<b>D. Wood Construction</b>						
1. Fabrication process of prefabricated wood structural elements and assemblies.				1704.6, 1704.2	<input type="checkbox"/>	
2. High-load diaphragms designed in accordance with Table 2306.3.2				1704.6.1, 1704.1	<input type="checkbox"/>	
<b>E. Soils</b>				1704.7	<input type="checkbox"/>	
<b>F. Pile Foundations</b>				1704.8	<input type="checkbox"/>	
<b>G. Pier Foundations</b>				1704.9	<input type="checkbox"/>	
<b>H. Sprayed Fire-Resistant Materials</b>						
1. Structural member surface conditions.				1704.10.1	<input type="checkbox"/>	
2. Application.				1704.10.2	<input type="checkbox"/>	
3. Thickness.			ASTM E 605	1704.10.3	<input type="checkbox"/>	
4. Density.			ASTM E 605	1704.10.4	<input type="checkbox"/>	
5. Bond strength.			ASTM E 736	1704.10.5	<input type="checkbox"/>	
<b>I. Mastic and Intumescent Fire-Resistant Coatings</b>				1704.11	<input type="checkbox"/>	
<b>J. Exterior Insulation and Finish Systems (EIFS)</b>				1704.12	<input type="checkbox"/>	
<b>K. Special Cases</b>				1704.13	<input type="checkbox"/>	
<b>L. Smoke Control</b>				1704.14	<input type="checkbox"/>	
<b>M. Special Inspections for Seismic Resistance</b>						
1. Structural steel.	X		AISC 341	1707.2	<input type="checkbox"/>	
2. Structural wood.	X			1707.3	<input type="checkbox"/>	
3. Cold-formed steel framing.		X		1707.4	<input type="checkbox"/>	
4. Pier Foundations.		X		1707.5	<input type="checkbox"/>	
5. Storage racks and access floors.		X		1707.6	<input type="checkbox"/>	



INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
6. Architectural components.		X		1707.7	<input type="checkbox"/>	
7. Mechanical and electrical components.		X		1707.8	<input type="checkbox"/>	
8. Designated seismic system verifications				1707.9	<input type="checkbox"/>	
9. Seismic isolation system.		X		1707.10	<input type="checkbox"/>	
<b>N. Structural Testing for Seismic Resistance</b>						
1. Testing and verification of masonry materials and assemblies prior to construction.				1708.1	<input type="checkbox"/>	
2. Testing for seismic resistance.				1708.2	<input type="checkbox"/>	
3. Reinforcing and prestressing steel.			ACI 318	1708.3	<input type="checkbox"/>	
4. Structural steel.			AISC 341, AWS D1.1	1708.4	<input type="checkbox"/>	
5. Seismic qualification of mechanical and electrical equipment.				1708.5	<input type="checkbox"/>	
6. Seismically isolated structures.			Section 17.8 of ASCE 7	1708.6	<input type="checkbox"/>	
<b>O. Structural Observations</b>						
1. Seismic resistance.				1709.2	<input type="checkbox"/>	
2. Wind requirements.				1709.3	<input type="checkbox"/>	
<b>P. Test Safe Load</b>				1712	<input type="checkbox"/>	
<b>Q. In-Situ Load Tests</b>				1713	<input type="checkbox"/>	
<b>R. Preconstruction Load Tests</b>				1714	<input type="checkbox"/>	
<b>S. Other (list)</b>					<input type="checkbox"/>	



PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Asbestos and lead-based paint certification.
- B. Moisture control.

1.02 RELATED SECTIONS

- A. Section 014100 - Regulatory Requirements
- B. Section 015719 - Temporary Environmental Controls

1.03 ASBESTOS AND LEAD-BASED PAINT CERTIFICATION

- A. Contractor shall submit the enclosed "Asbestos and Lead-Based Paint Certification" upon completion of all work.

1.04 MOISTURE CONTROL

- A. The Contractor shall maintain a strict policy and protocol for the control of water infiltration and moisture build-up during the course of the project. The plans and specifications are not intended to depict each and every condition or detail of construction. As the knowledgeable party in the field, the Contractor is in the best position to verify that all construction is completed in a manner which will provide a watertight structure. The Contractor has the sole responsibility for ensuring the watertight integrity of the structure. The Contractor's contractual obligations include, but are not limited, to the following:
- B. Water Infiltration: If the Contractor observes water infiltration (unintended) into a completed building or an ongoing construction site, he must immediately report the condition to the Owner and Architect, and shall immediately take steps to investigate the source of the water infiltration, identify the responsible party (person who performed work that resulted in water infiltration) and devise a procedure to promptly eliminate water infiltration into the building.
- C. Handling of Water-Damaged Building Materials and Construction:
  - 1. Contractor shall inspect all building materials delivered to the site for pre-existing water damage, as well as existing mold growth.
  - 2. If in-place construction becomes wet, notify the Owner and Architect immediately. The Owner and Architect will determine whether or not the work shall be removed and replaced, or if the type of material can be permitted to dry.
  - 3. Under no circumstances may new or additional construction be placed over, or otherwise enclose, wet building materials.
- D. Visible Mold/Mildew:
  - 1. If the Contractor observes any substance that appears to be mold or other fungal growth and/or an unidentified substance within a completed building or the ongoing construction site, he shall immediately suspend construction operations in the area, and report the condition to the Owner and Architect.
  - 2. No person shall be allowed back into the affected area without permission of the Owner.



1.05 SUBMITTALS

- A. Contractor shall submit completed and notarized "Certification of Asbestos and Lead-Based Paint" form.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

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**Certificate of Asbestos and Lead-Based Paint  
(New Work)**

Client's Name: \_\_\_\_\_

Project Location: \_\_\_\_\_

Project Address: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Number: \_\_\_\_\_

**CERTIFICATION:**

This Contractor hereby certifies that no asbestos-containing material and lead-based paint, as defined by applicable federal and state regulations, has been furnished or installed at the referenced project:

Contractor Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Telephone: \_\_\_\_\_ Date Executed: \_\_\_\_\_

**This Form Shall Be Notarized**

**END OF SECTION**



## 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 facilities.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Drainage.
  - 2. Water Service and distribution.
  - 3. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
  - 4. Ventilation.
  - 5. Electric power service.
  - 6. Lighting.
  - 7. Temporary Heating.
- C. Support facilities include, but are not limited to, the following:
  - 1. Waste disposal facilities.
  - 2. Field offices.
  - 3. Storage and fabrication sheds.
  - 4. Lifts and hoists.
  - 5. Staging areas.
  - 6. Construction aids and miscellaneous services and facilities.
  - 7. Scaffolding and platforms
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Environmental protection.
  - 2. Stormwater control.
  - 3. Tree and plant protection.
  - 4. Pest Control.
  - 5. Site enclosure fence.
  - 6. Security enclosure and lockup.
  - 7. Barricades, warning signs, and lights.
  - 8. Covered walkways
  - 9. Temporary enclosures.
  - 10. Temporary partitions.
  - 11. Fire protection.
- E. Unless work of this section is indicated to be provided under a specific contract, Contractor must provide, maintain and remove required temporary facilities necessary to perform his own construction activities.
- F. Accessible Temporary Egress: Comply with applicable provisions in ICC A117.1.

### 1.02 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and 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: 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."
  1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

#### 1.03 PROJECT CONDITIONS

- A. Temporary Utilities: Each contractor will prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of 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-preventive measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

#### 1.04 DIVISION OF RESPONSIBILITIES

- A. General: These Specifications assign the Contractor responsibilities.
- B. Each Contractor is responsible for the following:
  1. Installation, operation, maintenance and removal of each temporary facility considered as its own normal construction activity, as well as the costs and use charges except as listed below.
  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 storage and fabrication sheds.
  4. Hoisting requirements, including hoisting loads in excess of 2 tons, hoisting material or equipment into spaces below grade, and hoisting requirements outside the building enclosure. ( Rigging Insurance must be provided by each prime contractor )
  5. Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
  6. Secure lock-up of its own tools, materials and equipment.
  7. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
  8. Maintaining temporary facilities provided by Contractor.
  9. Complying with the regulations of the Commissioner of Education - 8 NYCRR 155.5 - Uniform Safety Standards for School Construction and Maintenance Projects specified in Division 1 Section 011400.
  10. Containers for non-hazardous waste and debris generated by their own demolition and construction operations.



## 1.05 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner, Architect or Owner's Construction Representative and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
  - 1. The Owner's Construction Representative.
  - 2. Other Contractors.
  - 3. Owners construction forces.
  - 4. Occupants of Project.
  - 5. Architect .
  - 6. Testing Agencies.
  - 7. Personnel of authorities having jurisdiction.
- B. Water Service: Use water from the Owner's existing water system without metering and without payment of use charges. Access to water shall be approved by the Owner.
- C. Electric Power Service: Temporary electric power including set-up and maintenance is the responsibility of the Electrical Contractor.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. General: Provide new materials. If acceptable to the Architect / Construction Manager, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Lumber and Plywood:
  - 1. For job-built temporary offices, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
  - 2. For signs and directory boards: provide exterior grade APA HDO plywood of sizes and thicknesses indicated.
  - 3. For vision barriers, provide minimum 3/8-inch-thick exterior plywood.
  - 4. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch-thick exterior plywood over appropriate wood framing.
- C. Paint:
  - 1. Paint surfaces exposed to view from Owner occupied areas in a color selected by the Owner's Construction Representative. Maintain coverage throughout the construction period.
- D. 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.
- E. Water: Provide potable water approved by local health authorities. Protect water sources with approved backflow or vacuum breaker devices.
- F. Open-Mesh Chain Link Fencing: Provide 0.120-inch-thick, galvanized steel posts, and 2.875" diameter. Gate posts with 6 foot high mesh on stanchion posts spaced 8-foot on center maximum. Provide lockable gates with galvanized chains and security padlocks. Furnish keys to



the Owner, Owner's Construction Representative, Prime Contractor representatives, and necessary construction personnel.

- G. Temporary Roofing: 5/8" FR plywood roof sheathing and 45 mil reinforced EPDM membrane
- H. Temporary Flooring protection : " Ram Board" or equivalent with taped joints.

## 2.02 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. 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 and vacuum breakers at hose bib connections .
- C. Fire Extinguishers: 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 potential exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

## PART 3 - EXECUTION

### 3.01 CONTRACTOR FIELD OFFICES

- A. Contractors may, with permission from the Owner and Owner's Construction Representative, establish a field office for their own use. Offices for the individual prime contractors, sub-contractors, specialty contractors and the like shall be of size and design as approved by the Owner and Owner's Construction Manager. Offices shall be located in the designated staging area. Each representative contractor shall arrange for telephone service and electric service, if required, directly with the utility company. (No field offices or storage trailers will be allowed within 100 feet of any building.)
- B. Maintain, in the each contractor's field office, all articles for First Aid treatment. Each contractor shall also establish standing arrangements for the immediate removal and hospital treatment of any employees and other persons on the job site who may be injured or who may become ill during the course work.

### 3.02 TEMPORARY AND PERMANENT SERVICES, GENERAL

- A. The Contractor's use of any permanent system or service of the building or portions thereof shall be subject to the Owners approval.
- B. The Contractor shall be responsible for any and all damage to permanent services used, and shall make good any and all damage to the satisfaction of the owner, prior to final completion and acceptance.
- C. NOTE - In accordance with OSHA and other applicable regulations, the representative Contractors performing erection of "skeleton" type work are solely responsible for the netting,



guard rail protection and such other safety devices as deemed necessary to protect the workers and public from harm.

### 3.03 TEMPORARY LIGHT AND POWER

- A. Temporary Electric Power Service: Electrical Contractor shall provide and pay all costs to provide a weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of work during the construction period.
1. Responsibility: All work under this section to be provided by the Electrical Contractor.
  2. Applicability: This section applies to all renovation and new construction work areas for this Project.
  3. Electrical Contractor shall make arrangements with utility company for temporary and permanent services immediately after award of contract.
  4. Temporary or permanent services for temporarily or permanently installed building equipment such as sump pumps, boilers, cabinet heating and/ or cooling units and fans shall be furnished, installed, operated and maintained so that the said equipment may be operated for drainage and temporary heat when required and/ or when so ordered by the Architect and Owner's Construction Representative.
  5. Electrical Contractor shall maintain all parts of the electrical system (temporary and permanent) active and in-service at all times throughout the contract duration. All temporary lighting to be controlled by standard switches per code (outside of power panels).
  6. Electrical contractor shall provide temporary generator power to maintain power to critical circuits during main electric service switch over. Critical circuits shall include fire alarm, emergency lighting, communication, information technology, heating units, etc. Coordinate required circuits with owner. Contractor shall assume a minimum of (2) 50 kw generators and temporary panels as necessary. Generators shall be located at the building exterior. Provide feeder cables, adequately sized, in accordance with NEC to feed temporary panels or existing sub-panels. Contractor shall include required fuel for operation.
  7. Electrical Contractor shall maintain power during the hours established by Owner's Construction Representative.
  8. Temporary Service: Install service and grounding in compliance with the National Electric Code (NFPA 70). Include necessary meters, transformers, overload protected disconnect and main distribution switch gear. Comply with all NECA, NEMA and UL Standards
  9. Provide temporary service with an automatic ground-fault interrupter feature, activated from the circuits of the system.
  10. Power Distribution System: Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead. Rise vertically where wiring will be least exposed to damage from construction operations.
  11. Provide metal conduit, tubing or armored cable for protection of temporary power wiring where exposed to possible damage during construction operations. Where permitted by code, wiring of circuits not exceeding 110-120 Volt 20 Amp rating and wiring of lighting circuits may be non-metallic sheathed cable in areas where located overhead and exposed. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors. Provide metal enclosures or boxes for wiring devices.
  12. Provide overload-protected disconnect switch as required by code.
  13. For power hand tools and task lighting, provide temporary 4-gang outlets at each floor level, spaced so that a 50-foot extension cord can reach each work area. Provide separate 110-120 Volt, 20 Amp circuit for each 4-gang outlet (4 outlets per circuit).
  14. Temporary electric power for Owner's Representative's field office.
  15. Temporary power and lighting for any sidewalk bridges.



16. Maintaining all existing systems, including but not limited to, power, lighting, fire alarm, intercom, kitchen freezers and refrigerators, etc., within the existing building operational at all times for Owner occupancy and construction.
- B. TEMPORARY ELECTRICAL AND TELEPHONE SERVICES
1. Temporary Power Source: At each building / renovation area, use the existing electrical power distribution system for temporary power source.
  2. Owner's Requirements: Do not disrupt the Owner's needs for continuous power at each building.
  3. Electrical Contractor shall provide temporary power and lighting facilities for use of all trades. All temporary light and power shall be in accordance with the required Codes and Safety Standards. The temporary light and power shall be used until permanent light and power is completed or portions of the building(s) are enclosed.
  4. Owner's Construction Representative on-site trailer already has power and data/tel wiring
  5. All other contractor trailer use / connection charges for power and telephone to be paid by the respective contractor.
- C. TEMPORARY POWER DISTRIBUTION
1. General Requirements: Electrical Contractor shall provide feeders and branch circuits of adequate size and proper characteristics as required to supply temporary receptacle and lighting loads. Size service and feeder conductors to restrict voltage drop to maximum 5 percent at 80 percent power factor. Provide properly sized overcurrent protection for each temporary electrical circuit.
- D. RECEPTACLE REQUIREMENTS
1. General Requirements: Provide temporary receptacle outlets as required for operation of portable tools and appliances during the construction period.
  2. Minimum Requirements: Provide a minimum of one quad 120 volt receptacle per 2500 square feet of building floor area, with maximum spacing of 50 feet on center.
  3. Branch Circuits: All temporary receptacle branch circuits to be rated 20 amps with a maximum of (3) duplex receptacles per circuit. Temporary receptacle branch circuits shall be independent of temporary lighting circuits.
- E. LIGHTING REQUIREMENTS
1. General Requirements: Electrical Contractor shall provide both interior and exterior lighting at areas where existing lighting has been removed and at new construction areas, as required to provide adequate illumination for safe and proper construction operations and Project Site security.
  2. Minimum Requirements: Provide illumination levels adequate for construction operations and safe traffic conditions. As a minimum provide one 200 watt lamp per 400 square feet of building floor area, with maximum spacing of 20 feet. Any rooms in excess of 500 sf will receive one 400 watt metal halide fixture for each 1000 sq. ft. of area.
  3. Stairways: Provide one 200 watt lamp per landing at each stairway.
  4. Barricades: Provide adequate lighting for personnel safety at barricades, ladders, openings and other similar locations.
  5. Supplemental Lighting: If required, supplemental lighting beyond minimum requirements shall be provided via suitable portable lighting units with cord and plugs, and shall be paid for by the Contractor or Sub-Contractor requiring such additional lighting.
  6. Branch Circuits: All temporary lighting branch circuits to be loaded to a maximum of 1400 watts per 20 amp circuit. Temporary lighting branch circuits shall be independent of temporary receptacle circuits.



7. Restrictions: Do not use permanent lighting systems for temporary construction lighting purposes.

F. MAXIMUM LOADS

1. General: Lighting and power loads connected to the temporary power distribution system shall be limited to the following maximum individual loads:

	Load Type	Maximum
a.	120 V, 1 Phase	1.5 KVA
b.	208 V, 1 Phase	2.5 KVA
c.	208 V, 3 Phase	5.0 KVA

2. General: The temporary power distribution system shall be sufficiently sized to provide temporary power as required within this section. Meter and Meter connections to be part of electrical contractors base bid.

G. ELECTRICAL WELDERS

1. Separate Power Sources Required: Power for electric welders and for other loads larger than the maximum allowable sizes shall be taken from portable power sources provided, paid for and operated by the Contractor or Sub-Contractor requiring the use of such equipment. Remove such power sources when no longer needed.

H. ELECTRICAL ENERGY COSTS

1. Paid By Owner: Charges for electrical energy usage for temporary power and lighting will be paid by the Owner, when taken from the Owner's electrical services. Contractor and Sub-Contractors shall exercise measures to conserve energy usage. Use of Owner supplied electric for items not specific to project (e.g. heating construction shanties, etc.) will not be permitted.

I. USE CHARGES

1. General: Cost or use charges for temporary facilities are not chargeable to the Owner or the Architect, Engineer, or Owner's Construction Representative. The Architect and Owner will not accept a prime contractor's cost or use charges for temporary services or facilities as a basis of claim for an adjustment in the Contract Sum or the Contract Time.
  - a. Water Service Use Charges: Water from the Owner's existing water system may be used without metering, and without payment for use charges.
  - b. Electric Power Service Use Charges: Electric power from the Owner's existing system may be used without payment of use charge

3.04 TEMPORARY TOILET FACILITIES

- A. Sanitary Facilities: Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with governing regulations including safety and health codes for the type, number, location, operation and maintenance of fixtures and facilities; provide not less than specified requirements. Install in locations which will best serve the project's needs. Owner's existing facilities shall not be used.
- B. Responsibilities: The General Construction Contractor is responsible for temporary sanitary facilities and their maintenance, cleaning and supplies for use by all trades. Sufficient quantity/locations to properly handle the amount of workers on-site.



- C. Supply and maintain toilet tissue, paper towels, paper cups and other disposable materials as appropriate for each facility, including Owner's Construction Representative temporary offices for full contract duration. Provide covered waste containers for used material.
- D. Install self-contained toilets to the extent permitted by governing regulations.
- E. Provide separate toilet facilities for male and female construction personnel.
- F. Provide separate toilet facilities for Owner's Construction Representative located at Staging Area at the direction of Owner's Construction Representative.

### 3.05 TEMPORARY HEATING

- A. The Mechanical Contractor will maintain 60 degree temperature in all areas via temporary and/or permanent systems. The Mechanical Contractor will submit a detailed plan including sketches indicating his proposed temporary heating system for engineer approval within 1 week of contract award. The Electrical Contractor will provide permanent or temporary power for the Mechanical Contractor's units for temporary heating. General Work Contractor will insure all windows / doors and work areas are fully enclosed. (Any missing components at time of temporary heat activation will be enclosed via 5/8 inch thick plywood, 2" rigid polyisocyanurate and 6-mil fire-retardant polyethylene sheeting for a weather-tight insulated enclosure.)
- B. The fuel, equipment, materials, operating personnel and methods used therefore shall be at all times satisfactory to the Architect and Owner's Construction Representative and adequate for the purpose intended. The use of electric heaters is not acceptable. All required fuel is part of this contract.
- C. The Contractor shall maintain the critical installation temperatures provided in the technical provisions of the specifications herein for all work in those areas where same is being performed.
- D. The maintenance of proper heating, ventilation and adequate drying out of the work is the responsibility of the contractor and any work damaged by dampness, insufficient or abnormal heating, shall be replaced to the satisfaction of the Architect by and at the sole expense of the contractor.
- E. Before and during the placing of gypsum and the application of other interior finishes, taping, varnishing, painting, etc. and until final acceptance by the Owner of all work covered by the Contract, the contractor shall, unless otherwise specified in the contract documents, maintain a temperature of 60 degrees F. Coordinate with Division 9 of the Technical Specifications.
- F. Use of the permanent system, if approved by engineer and owner permission granted, shall not shorten, or negate any equipment, or system guarantees required under this contract. (the warranty period starts upon the date of Substantial Completion). Two additional filter changes are to be provided by Mechanical Contractor. A program of use, maintenance and restoration will be submitted with request for use of systems for temporary services.

### 3.06 TEMPORARY WATER

- A. The Plumbing Contractor shall:
  - 1. Provide and maintain a temporary water system of size and capacity as required below to supply the needs of all Contractors for the work.



2. Provide no less than two 3/4 inch hose bibs conveniently located at each building wing.
3. Provide and pay for all connections and permits.
4. Install such temporary water system so that service shall be available at the commencement of the work. The permanent water risers and lines may be used for temporary water supply. The permanent services shall be turned over to the Owner in perfect condition. Any repairs required due to temporary use shall be made at the sole expense of the plumbing contractor.
5. Protect temporary and permanent lines against any damage.
6. Remove all temporary lines when directed by the Owner's Construction Representative when such lines are no longer required.
7. Water source is only available from building. If contractor decides distance is too far he should use water storage tanks or struck at no additional charge to the owner.

B. Each Contractor shall:

1. Provide all hose and other extensions from connections installed by the Plumbing Contractor and all labor, materials and supplies required to supply water to the work.
2. Prevent water damage to the work.

### 3.07 STORAGE FACILITIES

- A. Each Contractor shall provide temporary storage shanties, tool houses and other facilities as required for their own use. Temporary structures shall be located at the staging area and shall be removed upon completion of the work or when directed.
- B. Materials delivered to the site shall be safely stored and adequately protected against loss or damage. Particular care shall be taken to protect and cover materials that are liable to be damaged by the elements.
- C. Due to limited on site storage space, each Contractor shall coordinate delivery of his materials with the Owner's Construction Representative who will determine when large deliveries shall be made and shall be designate storage locations on site for delivered materials. All stored materials must be stored in locked, watertight trailers, paid for by applicable contractor.

### 3.08 SCAFFOLDING AND STAGING

- A. All scaffold, staging and appurtenances thereto shall comply in total to the requirements of Safety and Health Regulations for Construction Chapter XVII of OSHA, Part 1926 and all related amendments.

### 3.09 RUBBISH CONTAINER

- A. Each Contractor shall provide suitable rubbish container device(s) for his own use (both demolition and construction debris), properly maintained and serviced, replaced as required and protected from access by the public fencing as may be specified herein or approved by the Architect and Owner's Construction Representative.
- B. Contractor and Subcontractor shall sweep up and gather together daily all his own rubbish and removed materials and place same in containers.



### 3.10 CONSTRUCTION FENCING

- A. Construction fencing and barriers shall be provided by the General Construction Contractor, enclosing all work and storage areas as outlined in staging, plan and specified within. Temporary construction fencing shall be of good quality and neat in appearance.
- B. Site access gates shall be provided as required, complete with all operating hardware and security devices.
- C. Should fencing be required to be relocated or modified during the course of the project due to additional access needed by the contractor, same shall be done at the total expense of the contractor.
- D. The construction fence shall be maintained in good order by all contractors throughout the life of the project.
- E. Note: Should any contractor damage or cause the need for repair to the construction fence, all costs involved with said repair will be back-charged to the contractor creating the need for repair.
- F. General Construction Contractor shall provide a 60' x 150' fenced staging area at the location designated on the drawing for use by all trades. All fenced areas to be 6' high galvanized chain link fencing, 9 ga fabric on 10' long framed sections on stanchions. Gate locations as directed by Owner's Construction Representative. If additional storage is necessary, the contractors may use the remote staging area where Owner's Construction Representative's trailer is located.

### 3.11 JANITORIAL SERVICE/DAILY CLEANUP

- A. Each Contractor shall furnish daily janitorial services for the project and perform any required maintenance of facilities as deemed necessary by the Architect and Owner's Construction Representative during the entire life of the contract. If any contractor fails to keep the site safe and broom clean within 4 hours of being notified by Architect or Owner's Construction Representative, either verbally or in writing, the Owner's Construction Representative will have the cleanup work performed by others and the contractors will be back charged accordingly.
  - 1. The Contractor shall provide daily trash collection and cleanup of the project area and shall dispose of all discarded debris, and the like in a manner approved by the Owner's Construction Representative.

### 3.12 BURNING

- A. Burning will not be permitted.

### 3.13 MAINTENANCE OF PERMANENT ROADWAYS

- A. The General Construction Contractor shall immediately remove dirt and debris which may collect on permanent roadways created by their work, deliveries, manpower, equipment, etc.
- B. Temporary roads / entrance mats will be maintained by General Construction Contractor to insure that no mud, dust, dirt goes onto asphalt areas.



### 3.14 FIRE PREVENTION CONTROL

- A. Each Contractor shall comply with the safety provisions of the National Fire Protection Association's "National Fire Codes" pertaining to the work and, particularly, in connection with any cutting or welding performed as part of the work.

### 3.15 TEMPORARY FIRE PROTECTION

- A. Each Contractor shall take all possible precautions for the prevention of fires.
  - 1. Where flame cutting torches, blow torches, or welding tools are required to be used, their use shall be as approved by the Owner's Construction Representative at the site.
  - 2. When welding tools or torches of any type are in use, have available in the immediate vicinity of the work a fire extinguisher of the dry chemical 20 lbs. Type. The fire extinguisher(s) shall be provided and maintained by the Contractor doing such work.
- B. Fuel for cutting and heating torches shall be gas only and shall be contained in Underwriters laboratory approved containers.
- C. Storage of gas shall be in locations as approved by the Owner and subject to Fire Department regulations and requirements.
- D. No volatile liquids shall be used for cleaning agents or as fuels for motorized equipment or tools within a building except with the express approval of the Owner and/or Architect and in accordance with local codes. On-site bulk storage of volatile liquids shall be outside the buildings at locations directed by the Owner, who shall determine the extent of volatile liquid allowed within the building at any given time.
- E. Each Contractor shall comply with the following requirements relating to compressed gas:
  - 1. Where compressed gas of any type is used for any purpose at the site, it shall be contained in cylinders complying with ICC regulations. Gases of different types shall not be stored together except when in use and when such proximity is required.
  - 2. All gas cylinders shall be stored in sheds constructed of noncombustible materials. Sheds shall be well ventilated and without electric lights or fixtures and shall be located as far from other buildings as is practicable. All gas cylinders not in actual use, or in proposed immediate use, shall be removed from the building under construction or reconstruction. Empty gas cylinders shall be removed prior to bringing in a replacement cylinder. Cylinders shall at all times be supported and braced in an upright position. When not in use, the protective cap shall be screwed over the valve.
  - 3. All persons required to handle gas cylinders or to act as temporary firemen (Fire Watchers) shall be able to read, write and understand the English language; they shall also be required by the Contractor to read Part 3 of Pamphlet P-1 "Safe Handling of Compressed Gases" published by the Compressed Gas Association, 500 Fifth Avenue, New York, NY 10036.
  - 4. Where local ordinances are in effect regarding gas cylinders, (their use, appurtenances and handling), such ordinances shall supplement the requirements of this paragraph. All personnel engaged in fire watch shall be certified by the Local Fire Department having jurisdiction.
  - 5. Any cylinder not having the proper ICC markings or re-inspection marking, or any cylinder with a leak shall be isolated immediately away from any building and the supplier shall be immediately notified; such other precautions as may be required to prevent damage or injury shall also be taken by the Contractor.



- F. Each Contractor shall comply with the following requirements relating to welding and cutting:
1. All cutting and/or welding (electric or gas) must be done only by skilled, certified and licensed personnel.
  2. During welding or cutting operations, a contractors man shall act as a fire watcher. The fire watcher shall have proper eye protection and suitable fire fighting equipment including fire extinguisher (bearing current inspection Certificate), protective gloves and any other equipment deemed necessary.
  3. Welding or cutting shall not be done near flammable liquid, vapors or tanks containing such material.
  4. Where cutting or welding is done above or adjacent to (within two feet) combustible material or persons, a shield of incombustible material shall be installed to protect against fire or injury to sparks or hot metal.
  5. Tanks supplying gases for welding or cutting are to be placed in an upright position securely fastened, and close as practical to the operation. Tanks, actives or spares, shall be protected from excess heat and shall not be placed in stairways, hallways or exits. When not in use, protective valve cap shall be screwed on the cylinder.
  6. Adequate fire extinguishing equipment shall be maintained at all welding or cutting operations.
  7. The Contractor shall secure all required inspections.
  8. All equipment, hoses, gauges, pressure reducing valves, torches, etc., shall be maintained in good working order and all defective equipment shall immediately be removed from the job.
  9. No person shall be permitted to do any welding or cutting until his name, address and current license number have been submitted in writing to the Owner.
- G. Contractors for work outside the building shall commence operations promptly on award of Contract, and shall be responsible for same being kept clear of materials and debris in connection with their own work and that of other Contractors. If a Contractor for outside work allows other contractors to deposit material and debris over its lines, the Contractor shall be responsible for all delay and extra cost occasioned thereby.

### 3.16 DISCONTINUE, CHANGES AND REMOVAL

- A. All Contractors shall:
1. Discontinue all temporary services required by the Contract when so directed by the Construction Manager or Architect.
  2. The discontinuance of any such temporary service prior to the completion of the work shall not render the Owner liable for any additional cost entailed thereby and each Contractor shall thereafter furnish, at no additional cost to the Owner, any and all temporary service required by such Contractors work.
  3. Remove and relocate such temporary facilities as directed by the Construction Manager or the Architect without additional cost to the Owner, and shall restore the site and the work to a condition satisfactory to the Owner.

### 3.17 VENTILATION AND HUMIDITY CONTROL FOR CONSTRUCTION:

- A. General Construction Contractor will provide temporary ventilation as required for protecting the building from any adverse effects of high humidity during abatement and construction activities. Select dehumidification and ventilating equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements and have sufficient quantity of units to produce necessary ambient conditions.



1. Each Contractor shall be responsible for his own temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity.
2. Ventilate enclosed area to dissipate humidity, and to prevent accumulation of dust, fumes, vapors or gases.
3. Provide equipment as necessary for air and fresh exchange for the work area per OSHA standards.
4. Remove temporary ventilation equipment prior to the completion of construction.
5. If Contractor fails to adequately ventilate the building during the construction, abatement / roofing process, thereby causing humidity and possible mold issues, the owner will hire others to properly address and deduct costs from the Contractor accordingly.
6. General Construction Contractor will provide negative air machines of sufficient size/qty to fully ventilate the square footage of work areas and exhaust any dust/fumes through flexible duct hose to exterior top eliminate any odors / smoke.
7. Any contractor that allows water infiltration into any building shall be held responsible for the cleanup and provision of commercial dehumidifiers of sufficient size and quantity to prevent the generation of mold spore growth. Failure on the contractors part to address this issue within 4 hours of notice, will result in the Owner hiring outside parties to accomplish the required work in order to insure a safe environment. Owner will subsequently backcharge the contractor responsible for the water infiltration for all associated costs of hiring this outside contractor to carry out the work required.

### 3.18 TEMPORARY ROADS AND PERMANENT PAVED AREAS:

- A. General Construction Contractor shall construct and maintain temporary road areas adequate to support loads and to withstand exposure to traffic during construction period. See staging plan for construction requirements, materials, thicknesses, locations, etc.
  1. Includes access for delivery through staging area to building work areas, and to equipment and storage areas and sheds.
  2. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.
  3. Temporary areas are installed and/or maintained for access to all required areas of the sites.
  4. Contractors will be permitted to utilize existing campus roads, as designated (as segregated by the Owner - if required).
  5. Road Cleaning: Maintain roads and walkways in an acceptably clean condition. This includes the removal of debris daily, if required, and/or a minimum of once a week due to all project traffic. Road cleaning equipment to be wet/vacuum type. The General Construction Contractor will clean roads for debris from building-related activities.
  6. General Construction Contractor shall provide snow plowing of temporary road, parking area, access route, and a 5' walkway to office trailer. Provide snow removal and walking of walkways to Owner's Construction Representative office trailer. The school district will provide snow plowing of established routes.
  7. Staging Areas:
    - a. Temporary parking by construction personnel shall be allowed only in areas so designated and confirmed with the District.
    - b. Traffic Regulations:
      - 1) Access through Owner's entrances shall be limited. Confirm access locations and time frames with the District or Owner's Construction Representative when required.
      - 2) Utilize only entrances/temporary roads as designated.
      - 3) Maintain all District traffic regulations and site access.



- 4) Construction parking will not be allowed adjacent to District buildings, additions or monuments. Construction parking will be located in areas designated by the District or Owner's Construction Representative.
- 5) Construction employee parking to be located as directed by the Owner's Construction Representative.

### 3.19 TRAFFIC CONTROLS:

- A. General Construction Contractor shall provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads, barricades, flagmen, etc. Comply with requirements of authorities having jurisdiction.

### 3.20 DEWATERING FACILITIES AND DRAINS

- A. Each Prime Contractor is directly responsible for dewatering of their excavations. The responsibility of dewatering of the site as to facilitate the work will be the responsibility of the General Construction Contractor, coordinate with the Owner's Construction Representative
- B. Comply with requirements in applicable Division 31 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, common use of dewatering and drainage facilities is recommended. Maintain Project site, excavations, and construction free of water.
  1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties, nor endanger permanent drainage systems. Provide temporary drainage where roofing or similar waterproof deck construction has been completed.
- C. Remove snow and ice, on a daily basis, to minimize accumulations.

### 3.21 ROOF PROTECTIONS

- A. The General Construction Contractor shall provide temporary protection on the roof surface when it is necessary for work to take place on completed roof areas. Other Primes shall be held responsible to notify the General Construction Contractor of their work and required roof protection areas.
- B. When requested by other trades as noted above, the General Construction Contractor shall provide a minimum of 2 inch thick Polyisocyanurate or Extruded Polystyrene (40 psi) rigid insulation with a 5/8" plywood overlay to protect existing roofing system from damage. Provide removable weighting systems to protect against wind uplift / blow-offs of these protective materials.
- C. Based upon the requirements noted above, the General Construction Contractor shall assume responsibility for any damage(s) to the roofing system caused by the work of other trades, except that financial responsibility for any damage(s) to the roofing system shall be that of the Contractor responsible for the damage(s) as determined by the Owner's Construction Representative.

### 3.22 SIGNAGE

- A. The General Construction Contractor shall provide signs as required below. Install signs where required or indicated to inform public and persons seeking entrance to project site. All signage and posts provided shall become the property of the District at the conclusion of the project.



- B. Prepare temporary signs to provide directional information to construction personnel and visitors.
- C. Construct signs in accordance with section 619 of the NYS DOT standard specifications (MUTCD overall sign size, letter size, metal signage). Support on breakaway metal posts or attach to fencing using zip ties to prevent unauthorized removal; do not attach signs to buildings or permanent construction.
- D. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer. Engage an experienced sign painter or fabricator to apply graphics. Signs shall have an orange background with black letters/graphics unless directed otherwise.
- E. Include relocating temporary site safety and directional signs as many times as required or directed by the Owner's Construction Representative.
- F. The General Construction Contractor shall furnish, install and relocate all construction signage as required at each project site.
- G. Project Sign Requirements:
  - 1. Ten (10) signs shall be provided and located (and relocated) as designated by the District or Owner's Construction Representative for construction traffic control/flow at entrances/exits.
  - 2. Four (4) signs for "Construction Parking".
  - 3. Four (4) signs to direct deliveries
  - 4. Ten (10) signs for "Emergency egress only - Construction Area" per OSHA standards.
  - 5. Ten (10) signs for "No Smoking" safe work site at multiple locations as directed by Owner's Construction Representative.
  - 6. Fifteen (15) signs for "Construction Area - Do Not Enter" mount on fence as directed by the Owner's Construction Representative.
  - 7. Ten (10) signs for "No Trespassing" mounted on construction fence as directed by the Owner's Construction Representative.
- H. A pre-mobilization meeting to establish location and quantities of all signage will be held with contractor, Construction Manager, and the Owner. Prior to the start of any actual work the signage must be reviewed / approved by the Owner's Construction Representative.

### 3.23 ENVIRONMENTAL PROTECTION:

- A. The General Construction Contractor shall provide protection, operate temporary facilities, and conduct construction with means and methods that comply with local and state environmental regulations and that minimize possible air, waterway, and subsoil contamination, pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict the use of noise-producing tools and equipment to hours that will minimize complaints from persons, residential occupants, or firms near Project site.

### 3.24 STORMWATER CONTROL

- A. The General Construction Contractor shall provide earthen embankments, silt fencing, haybales, and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater.



**3.25 SECURITY ENCLOSURE AND LOCKUP:**

- A. Each Contractor shall provide protection and security for partially completed areas of construction. Provide barricades to prevent unauthorized access, vandalism, theft, and similar violations of security.

**3.26 BARRICADES, WARNING SIGNS AND LIGHTS:**

- A. Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard.
  - 1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch thick exterior grade APA BC plywood with structurally adequate supports and/or scaffolding as approved by the Owner's Construction Representative.

**3.27 TEMPORARY ENCLOSURES**

- A. The General Construction Contractor shall provide temporary enclosures for protection of construction from exposure to inclement weather and for safety of any roof related openings. Close openings in roof deck with load bearing wood frame construction members (sized for design roof loads), 5/8" exterior grade, structural 1, APA BC plywood and watertight EPDM adhered membrane.
- B. The General Construction Contractor shall fully enclose all windows / door openings. Maintain access and egress for workers via secured temporary doors / gates. During periods of temporary heat provisions, provide 5/8 inch, exterior grade, APA BC plywood with 2 inch rigid polyisocyanurate and 6 mil polyethylene sheeting for a weather-tight, secure and insulated enclosure. Temporary doors shall each have an exit device and door closer.
- C. Any other temporary enclosures for specific openings for any contractor to perform their work shall be the responsibility of the contractor requiring / creating the opening. These openings shall be installed to protect the building from exterior elements, security issues, odors and noise resulting from construction operations.

**3.28 TEMPORARY PARTITIONS**

- A. The General Construction Contractor shall erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate work areas.
  - 1. Construct dustproof, floor to ceiling partitions of not less than 3-5/8" - 20 ga. studs; 2 layers of 6 mil fire-retardant polyethylene sheets inside / outside; 5/8 inch thick exterior grade plywood sheathing; 5/8 inch thick interior, Type X gypsum board, taped spackled (1 coat) and painted.
  - 2. Cover floor with 2 layer fire retardant polyethylene and extend 18 inches vertically at each side. Overlap and tape all joints.
  - 3. Sound insulate partitions to provide noise protection to occupied areas
  - 4. Caulk joints and perimeter to prevent dust migration. Equip partitions with dustproof doors and security locks.
  - 5. In addition to any temporary partition locations shown on drawings, the General Construction Contractor shall include in its base bid a minimum of six (6), 9 foot by 12 foot temporary partitions meeting criteria listed above for use and located where directed by the Owner's Construction Representative. Each location shall be equipped with a 3



foot wide by 7 foot high hollow metal door/frame with hinges, closer and exit device hardware.

### 3.29 AREA OF SPECIAL PROTECTION

- A. In the event of an emergency (designated by the sounding of the fire alarm system) all construction activities must immediately cease. Contractor's work force will evacuate themselves from work areas and remain outside of work areas until the "all clear" is given. No work operations will be tolerated during the evacuation of the building or during an emergency.
- B. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

### 3.30 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 in good operating condition until removal. Protect from damage.
  - 1. Maintain operation of temporary enclosures on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  - 2. Protection: Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended and no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been affected because of interference with the temporary construction / facilities. 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 and responsibility of the General Construction Contractor.
  - 2. At Substantial Completion, clean, repair and renovate permanent facilities used during the construction period.

### END OF SECTION



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. The Work of this Section includes the furnishing of the Owner's Construction Representative's Field Office (Trailer).
  - 1. The Owner's Construction Representative's Field Office shall be furnished by the General Construction Contractor.
  - 2. It shall be provided within the time period specified hereinafter.
- B. The Contractor shall also furnish the following to the Owner/ Owner's Construction Representative's all in accordance with the specifications contained herein as follows:
  - 1. Miscellaneous equipment and supplies
  - 2. Materials
  - 3. Computer system with associated peripheral computer related equipment
  - 4. Services as may be specified herein.
- C. The Contractor shall install two (2) new telephone services (telephone and fax/modem) for the exclusive use of the Owner's Construction Representative's. The telephone services shall be provided to the Construction Manager's construction trailer located on the site as selected by the Owner's Construction Representative's. The costs associated with providing the Owner's Construction Representative's's telephone services shall be included in the price as-bid and is not eligible for payment out of any cash allowance.
- D. This Section also specifies the requirements for Field Offices to be established by all Prime Contractors for the exclusive use of the respective Prime Contractor.

### 1.02 CARE AND PLACEMENT

- A. Field offices shall be placed where directed by the Owner's Construction Representatives's in accordance with site utilization requirements.
- B. All field offices shall be installed to meet all standards of the Occupational Safety and Health Act of 1970 and subsequent revisions.
- C. In the event of damage to existing facilities, including but not limited to: tanks, driveways, walks, pavement, buildings, pipes, conduits, valves, and electrical facilities then immediately make all repairs and replacements to an equal condition prior to the event.

### 1.03 QUALITY PERFORMANCE

- A. Comply with and perform all work in accordance with the requirements of local authorities and utility companies having jurisdiction.

### 1.04 SUBMITTALS

- A. The Contractor shall submit the following:
  - 1. Floor plan of the proposed Field Office of the Owner's Construction Representative's.
  - 2. Catalog cuts of miscellaneous equipment and supplies if they are different from that specified.
- B. The Contractor shall also provide a listing of the companies providing specified services with telephone number and contact name. Provide references for each company when requested.



## PART 2 - PRODUCTS

### 2.01 OFFICE OF PRIME CONTRACTORS

- A. The Contractor shall provide and maintain during the life of this contract separate and suitable offices at the site that shall be used as the Contractor's superintendent office.
- B. Provide adequate facilities for maintaining record documents, for holding small meetings and a telephone upon which calls may be received from Owner, Architect and others. The telephone shall be equipped with a fax machine and an answering machine.
- C. The Contractor shall install, maintain, and repair if necessary, temporary electric and telephone to their own field office.

### 2.02 MATERIALS, EQUIPMENT AND SERVICES FURNISHED TO THE OWNER BY THE CONTRACTOR

- A. The General Construction Contractor shall also furnish the following equipment and services that shall not be eligible under any cash allowance. All items specified herein shall be new and remain the property of the Owner unless otherwise stated. The following shall be furnished:
  - 1. Two (2) 23-gallon plastic wastepaper basket.
  - 2. New 50-person industrial first aid station, OSHA approved, by Acme United or equal, order no. ACM-1403 (Huntington Business Products) or equal.
  - 3. Thermometer, with indoor and outdoor sensing bulbs, and high, low instantaneous reading, with magnetic reset function by Radio Shack or equal.
  - 4. Two U.L. and F.M. approved fire extinguishers with a minimum rating of 4A-60B:C.
  - 5. Standard manufacturer operating manuals for all equipment supplied.
  - 6. One (1) 30" x 60" desk with 4 side drawers and a locking center drawer.
  - 7. One (1) new swivel task chair for use with desk equal to order no. SUP-12223643 by Superior Chair (Huntington Business Products).
  - 8. One (1) new rolling stand with top, Model No. 76MR/76TP from Plan Hold, catalog #27, or equal.
  - 9. Two (2) 48" x 60" reference tables.
  - 10. Six (6) folding chairs.
- B. Janitorial Services - Provide janitorial services two (2) times each week. Thoroughly clean and dust entire office and leave in a condition satisfactory to Architect. Provide this service through final completion.
- C. Ownership of Furnishings - All items to be provided by Contractor under this paragraph shall remain the property of the Owner unless otherwise stated.
- D. Internet Access Service - The Contractor shall also pay for monthly Internet access fees at a cost not to exceed \$45.00 per month for the length of the contract up to the date of final completion.
  - 1. This cost shall be included in the price as bid and shall be billed directly to the General Construction Contractor.
  - 2. The service provider shall be selected by the Architect. The General Construction Contractor shall arrange for the service.
  - 3. Internet access will be used by the Architect and the Owner to send email to manufacturers, vendors, Architect's home office, the Contractor's home office, other prime Contractors, regulatory agencies and the like.



## FIELD OFFICES

**H2M**

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

4. The Contractor may use this service at the discretion of the Architect. Only project related transmissions will be allowed.
  5. If high speed DSL or cable service is available, then the Contractor shall arrange for this service in lieu of a dial up service.
- E. All items specified herein are subject to the approval of the Architect or the Owner's Construction Representative's.
- F. Equipment shall be delivered to the site and turned over to the Architect via a type written transmittal form.
- G. All equipment that is to remain the property of the Contractor shall be new.
1. Equipment that is to remain the property of the Owner shall also be new and be provided in it's factory packaging, unopened until delivered to the Owner/Architect.
  2. Maintenance of all supplied equipment shall be the Contractor's responsibility up to substantial completion.
- H. All items shall be delivered prior to the first application for payment, but no later than the day the Owner's Construction Representative's's Trailer is delivered.
- I. Construction Manager's Field Trailer:
1. Office - The General Construction Contractor shall furnish, equip, and maintain a field office at the site for the exclusive use of Owner/Architect.
    - a. The field office shall be of substantial weatherproof construction, with a usable floor space of not less than 10' x 40' overall.
    - b. Office may be in an approved, near new condition, independent trailer, completely skirted with insulation and with sufficient landings and stairs at each door.
    - c. Submit a scaled floor plan of the trailer.
  2. Duration - Provide office by no later than 30 calendar days from the date of the Notice To Proceed and maintained during the life of the Contract, up to the date of the Final Certificate.
  3. Location - As directed by Owner/Architect or Owner's Construction Representative's. Relocate during the progress of the work, without additional cost to Owner, as may be required by the Owner/Architect or Owner's Construction Representative's.
  4. Utilities - Provide the following in sufficient size, quantity, and capacity, as approved by the Owner/Architect.
    - a. Windows for natural light and ventilation, with locks, screens, and shades or curtains.
    - b. Lighting acceptable to the Owner/Architect/Owner's Construction Representative's.
    - c. Door with screen, with hasp and padlock and five keys for Owner/Architect's use. Two (2) doors minimum. Provide two (2) commercial grade foot mats at each door.
    - d. Air conditioning unit and heater in each room, sized to maintain an indoor temperature of 60 deg. F with an outdoor temperature range of 10 deg. F to 90 deg. F.
    - e. 110 volts, 100-amp electric service with sufficient receptacles spaced around the room.

## 2.03 REMOVALS

- A. Remove all items provided under this Section except as otherwise specified.



**PART 3 - EXECUTION**

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

- A. Remove temporary above grade or buried utilities, equipment, facilities and materials.
- B. Remove underground installations to a minimum depth of 2 feet or as specified elsewhere.
- C. Regrade area to existing slope and elevation and restore the surface to its existing condition or to the condition shown on the Contract Drawings.
- D. The Contractor shall inventory all equipment that has been turned back to the Contractor prior to agreeing to final payment.

**END OF SECTION**



PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Control of environmental pollution and damage that the Contractor must consider for air, water, and land resources in preparing a bid and while constructing the project. This Section includes management of site aesthetics, noise, solid and liquid waste and wastewater, and other pollutants that may be generated by the Contractor.
- B. Include all costs associated with environmental protection as specified herein and as specified in other Sections of these specifications in the total price bid.

1.02 DEFINITIONS

- A. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
  - 1. Adversely effect human health or welfare,
  - 2. Unfavorably alter ecological balances of importance to human life,
  - 3. Impact wetlands,
  - 4. Effect other species of importance to man, or;
  - 5. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.
- B. Definitions of Pollutants:
  - 1. Sediment: Soil and other debris that has been eroded and transported by runoff water.
  - 2. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
  - 3. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.
  - 4. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
  - 5. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalies, herbicides, pesticides, organic chemicals, and inorganic wastes.
- C. Sanitary Wastes:
  - 1. Sewage: Domestic sanitary sewage and human and animal waste.
  - 2. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 PROTECTION OF ENVIRONMENTAL RESOURCES

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this Contract. Confine activities to areas defined by the Contract Documents.
- B. Protection of Land Resources: Prior to construction, identify all land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without permission from the Architect. Do



not fasten or attach ropes, cables, or guys to trees for anchorage unless specifically authorized, or where special emergency use is permitted.

- C. Work Area Limits: Prior to any construction, mark the areas that require work to be performed under this Contract. Mark or fence isolated areas within the general work area that are to be saved and protected. Protect monuments, works of art, and markers before construction operations begin. Convey to all personnel the purpose of marking and protecting all necessary objects.
- D. Protection of Landscape: Protect trees, shrubs, vines, grasses, land forms, and other landscape features shown on the drawings to be preserved by marking, fencing, or using any other approved techniques.
  - 1. Box and protect from damage existing trees and shrubs to remain on the construction site.
  - 2. Immediately repair all damage to existing trees and shrubs by trimming, cleaning, and painting with antiseptic tree paint.
  - 3. Do not store building materials or perform construction activities closer to existing trees or shrubs than the farthest extension of their limbs.
- E. Reduction of Exposure of Unprotected Erodible Soils: Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Clear areas in reasonably sized increments only as needed to use. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.
  - 1. Temporary Protection of Disturbed Areas: Construct diversion ditches and berms to retard and divert runoff from the construction site to protected wetlands areas as defined in the Clean Water Act and federal, state and local regulations.
  - 2. Erosion and Sedimentation Control Devices:
    - a. Construct or install all temporary and permanent erosion and sedimentation control features as shown or specified in the Contract Documents and as required by the Owner pursuant to direction of the regulatory authority.
  - 3. Manage borrow areas on and off Owner property to minimize erosion and to prevent sediment from entering nearby property, watercourses and local streets.
  - 4. Manage and control spoil areas on and off Owner property to limit spoil to areas shown on the Environmental Protection Plan and prevent erosion of soil or sediment from entering nearby property, watercourses or streets.
  - 5. Protect adjacent areas from degradation by temporary excavations and embankments.
- F. Handle and dispose of solid wastes in such a manner that will prevent contamination of the environment.
  - 1. Place solid wastes (excluding clearing debris) in containers that are emptied on a regular schedule.
  - 2. Transport all solid waste off Owners' property and dispose of waste in compliance with Federal, State, and local requirements.
  - 3. Store chemical waste away from the work areas in corrosion resistant containers and dispose of waste in accordance with Federal, State, and local regulations.
  - 4. Handle discarded materials other than those included in the solid waste category as directed by the Architect.
- G. Protection of Water Resources: Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters and sewer systems. Implement management techniques to control water pollution by the listed construction activities that are included in this Contract.



- H. Washing and Curing Water: Do not allow wastewater directly derived from construction activities to enter water areas. Collect and place wastewater in retention ponds allowing the suspended material to settle, the pollutants to separate, or the water to evaporate.
- I. Control movement of materials and equipment during construction to prevent violation of water pollution control standards of the Federal, State, or local government.
- J. Monitor water areas affected by construction.
- K. Protection of Fish and Wildlife Resources:
  - 1. Keep construction activities under surveillance, management, and control to minimize interference with, disturbance of, or damage to fish and wildlife.
  - 2. Prior to beginning construction operations, list species that require specific attention along with measures for their protection.
- L. Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources.
  - 1. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the State and Federal emission and performance laws and standards.
  - 2. Maintain ambient air quality standards set by the Environmental Protection Agency and State, for those construction operations and activities specified.
- M. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, processing, and preparation of materials (such as from asphaltic batch plants) at all times, including weekends, holidays, and hours when work is not in progress.
- N. Particulates Control: Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance. Sprinkle, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators, or other methods are permitted to control particulates in the work area.
- O. Hydrocarbons and Carbon Monoxide: Control monoxide emissions from equipment to Federal and State allowable limits.
- P. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.
- Q. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the Architect. Maintain noise-produced work at or below the decibel levels and within the time periods specified in accordance with OSHA and local ordinances, whichever is more restrictive.
  - 1. Perform construction activities involving repetitive, high-level impact noise only between 8:00 a.m. and 5:00 p.m. unless otherwise permitted by local ordinance or by the Architect.
  - 2. Repetitive impact noise on the property shall not exceed the following dB limitations:
  - 3. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this Contract, consisting of, but not limited to, the following:
    - a. Use shields or other physical barriers to restrict noise transmission.
    - b. Provide soundproof housings or enclosures for noise-producing machinery.
    - c. Use efficient silencers on equipment air intakes.



TEMPORARY ENVIRONMENTAL CONTROLS  
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- d. Use and maintain efficient intake and exhaust mufflers on internal combustion engines.
- e. Line hoppers and storage bins with sound deadening material.
- f. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.

**END OF SECTION**



**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. This Section includes the general requirements for products that are to be furnished, installed, or otherwise incorporated into the project.

**1.02 QUALITY ASSURANCE APPLIES TO ALL PRODUCTS**

- A. In addition to the Contractor's warranties and guarantees on materials and equipment required under the General Conditions of the Contract and the Technical Specifications contained hereinafter, the Contractor shall also be responsible for all materials, equipment, and products that have or is planned to be incorporated into the work.
  - 1. The Contractor shall be responsible for the finished work and that it accurately and completely complies with these Contract Documents.
  - 2. The Contractor shall be responsible for work performed by subcontractors, equipment suppliers, and material vendors.
  - 3. The Contractor shall be satisfied as to the product's performance before it is ordered for installation. At the Contractor's option, he/she shall have tested each product to determine compliance with these specifications.
- B. The Architect may check all or any portion of the work and the Contractor shall afford all necessary assistance to the Architect in carrying out such checks.
  - 1. Such checking by the Architect shall not relieve the Contractor of any responsibilities for the accuracy or completeness of the work.
  - 2. Such checking is a courtesy service being provided by the Owner and does not relieve the Contractor of his/her responsibilities under this Construction Contract.
- C. If witnessed shop tests or inspections are required at the point of manufacture, the Contractor shall keep the Architect advised as to the progress of the work to allow inspection at the proper time and place. Provide at least two (2) weeks advance notice before scheduled shop tests.
- D. Should a dispute arise as to the quality of workmanship, equipment or material performance, then the final decision regarding acceptability with these Contract Documents shall be that of the Owner.
- E. At the request of the Architect, the Contractor shall promptly provide the services of a competent representative of the manufacturer at the project site, fully equipped and prepared to answer questions, perform tests, make adjustments and to prove compliance with the Contract Documents free of all additional charges. Proof of compliance shall be the responsibility of the Contractor, and such special visits to the project site by the manufacturer shall not be eligible under any cash allowances or stipulated man-hours necessary to startup the system and/or train the Owner as may be specified in the Technical Specifications.

**1.03 QUALITY ASSURANCE - EQUIPMENT**

- A. Erect and install products under the supervision of a competent and experienced superintendent. The method of installation, including anchorage, clearances, and tolerances for rotating assemblies, methods of support for equipment and adjacent piping, shall be as recommended by the equipment manufacturer unless detailed on the Drawings or specified.
- B. All material furnished shall be new, and guaranteed free from defects in workmanship, installation, and design.



- C. Design and fabricate equipment in conformance with ANSI, ASTM, ASME, ASHRAE, IEEE, NEC and NEMA Standards.
  - 1. Equipment shall withstand the stresses that may occur during fabrication, testing, transportation, installation and conditions of operation.
  - 2. Pumps shall conform to the requirements of the Hydraulic Institute.
  - 3. Equipment shall comply with the latest OSHA regulations and the ANSI Safety Standards.
- D. Equipment shall be products of manufacturers who produce evidence of their ability to promptly furnish any and all interchangeable replacement parts as may be needed at any time within the expected life of the equipment.
- E. Manufacturers shall also have readily available access to suitable and accurate testing facilities for performing the required shop tests.

## PART 2 - PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

- A. Equipment shall have been in successful regular operation under comparable conditions for a period of at least five (5) years.
  - 1. This time requirement does not apply when the manufacturer posts an Owner/Architect acceptable Performance Bond or Letter of Credit for the duration of the time period that will guarantee replacement of the equipment in the event of failure.
  - 2. The bond shall be in a form that is acceptable to the Owner's legal council.
- B. The Owner reserves the right to reject any material or equipment manufacturer who, although he appears to be qualified and meets the technical requirements, does not provide satisfactory evidence indicating adequate and prompt post-installation repair and maintenance service, as required to suit the operational requirements of the Owner.
- C. Whenever it is required that the Contractor furnish materials or manufactured articles or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be of the best grade in quality and workmanship obtainable on the market from firms of established good reputation, or, if not ordinarily carried in stock, shall conform to the usual standards for first-class materials or articles of the kind required.
- D. Perform work in full conformity and harmony with the intent to secure the best standard of construction and equipment of the work as a whole or in part.
- E. Items of any one type of material or equipment shall be the product of a single manufacturer.
  - 1. For ease of the Owner in maintaining and obtaining service for equipment and for obtaining spare parts from as few places as possible, to the maximum extent possible, use equipment of a single manufacturer.
  - 2. The Architect reserves the right to reject any equipment from various manufacturers if suitable equipment can be secured from fewer manufacturers and to require that source of materials be unified to the maximum extent possible.
- F. Substitute equipment shall not be fabricated nor installed until after written decision to accept request is received from the Architect.



## 2.02 NAMEPLATES

- A. Each unit of equipment shall have the manufacturer's name or trademark on a stainless steel nameplate securely affixed in a conspicuous place.
- B. The manufacturer's name or trademark may be cast integrally with stamp, or otherwise permanently marked upon the item of equipment.
- C. Such other information as the manufacturer may consider necessary for complete identification shall be shown on the nameplate.

## 2.03 FABRICATIONS

- A. Insofar as possible, shop prefabricate all items complete and ready for installation.
- B. Accurately fabricate all items to the details shown on the Drawings and on the shop drawings found in compliance with the Contract Documents.

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Prior to work under any Section, carefully inspect the existing work and verify that it is complete to the point where the work under that Section may properly commence.
- B. Avoid the need to remove and replace work and to avoid unnecessary cutting and patching.
- C. Inspect all surfaces to be sure that they have been properly prepared before applying new work to such surfaces.
- D. Verify that all work can be installed in strict accordance with the drawings and the approved shop drawings. Immediately report discrepancies to Architect.
- E. Do not proceed with the work under any Section until these conditions are obtained.

### 3.02 INSTALLATION

- A. Furnish and install materials and equipment in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise provided in the Contract Documents.
- B. All work shall be done in a workmanlike manner and set to proper lines and grades. The work shall be square, plumb and/or level as the case may be.
- C. Where performance criteria are specified, do all work necessary to attain the required end results.

### 3.03 FIELD QUALITY CONTROL

- A. Neither observations by Architect nor inspections, tests or approvals by other persons shall relieve the Contractor from his obligations to perform the work in accordance with the requirements of the Contract Documents.



- B. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to specifically be inspected, tested or approved by some public body, the Contractor shall assume full responsibility therefore, pay all costs in connection therewith, and furnish the Architect with the required certificates of inspection, testing or approval.
- C. The Owner reserves the right to independently perform laboratory tests on random samples of material or performance tests on equipment delivered to the site.
  - 1. These tests, if made, will be conducted in accordance with the appropriate referenced standards or specification requirements.
  - 2. The entire shipment represented by a given sample, samples or piece of equipment may be rejected on the basis of the failure of samples or pieces of equipment to meet specified test requirements.
  - 3. All rejected materials or equipment shall be removed from the site, whether stored or installed in the work, and the required replacements shall be made, all at no additional cost to Owner.

### 3.04 ADJUST AND CLEAN

- A. Upon the completion of installations, and as a condition of its acceptance, visually inspect all work, adjust all components for proper alignment and touch-up abrasions and scratches to make them completely invisible.
- B. Thoroughly examine all materials and equipment with protective or decorative finishes for defects and damage prior to being covered.
  - 1. In the case of buried items of work, restore protective surface covers so as to conform to the Contract Documents prior to being backfilled, buried or embedded, as the case may be.
  - 2. In the case of exposed items of work, for which a decorative finish is required, all scratches, discoloration's, unmatched colors, disfigurements and damages shall be repaired and touched-up so as to provide a neat, clean finish, and be uniform in color.

### 3.05 UNCOVERING WORK

- A. Unless otherwise specified or directed by Architect, no work shall be covered until it has been observed, tested, photographed, measured, and authorized to be covered by Architect.
- B. Tie distances to above ground physical structures as reference points to all underground utilities, conduits, pits, manholes, valves, and pipelines shall be obtained by the Contractor prior to covering the work. Immediately comply with the Architect's direction to uncover the work if tie distances were not obtained.
- C. If any work has been covered with Architect's consent and Architect considers it necessary or advisable that covered work be observed or tested, the Contractor, at Architect's request, shall uncover, expose or otherwise make available for observation, or testing as Architect may require, that portion of the work in question, furnishing all necessary labor, material and equipment.
  - 1. If it is found that such work is defective, the Contractor shall bear all the expenses of such uncovering, exposure, observation, and testing of satisfactory reconstruction, including compensation for additional engineering services and an appropriate deductive change order shall be issued.



2. If, however, such work is not found to be defective, the Contractor shall be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to such uncovering, exposure, observation, testing and reconstruction if he makes a claim therefore as provided in the General Conditions.

### 3.06 DEFECTIVE WORK

- A. The repair, removal, replacement and correction of defective work is a part of this Contract and shall be promptly performed in accordance with the requirements set forth in the General Conditions or other portions of the Contract Documents. All costs in connection with the correction of defective work shall be borne by the Contractor.
- B. Products that fail to maintain the performance or other salient requirements of the Contract Documents, shows undue wear, or other deleterious effects during the maintenance period, shall be considered defective.

**END OF SECTION**



## PRODUCT DELIVERY, STORAGE AND HANDLING

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## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. The Section includes the transportation, handling, storage and protection of products that are to be incorporated into the work.
- B. The procedures for turning equipment over to the Owner for installation by others is also included herein.

### 1.02 GENERAL

- A. Items shall be delivered as complete assemblies direct from the manufacturer with all internal wiring, piping, valving, and control devices intact except where partial disassembly is required by transportation regulations, protection of components, or where physical constraints may exist or be created for the setting of the item.
- B. Coordinate the disassembly and reassembly requirements with the manufacturer. Determine the need and extent of reassembly prior to bid.
  - 1. All labor, material and equipment costs associated with the disassembly and reassembly of the product shall be included in the Contract Price.
  - 2. Where reassembly of equipment is necessary, then the manufacturer shall provide reassembly instruction at the project site.
  - 3. A technician shall be present during the entire reassembly procedure and the manufacturer shall certify, in writing, that the unit was reassembled properly in accordance with instructions provided by the manufacturer and that all as-specified warranties remain in effect.
  - 4. The manufacturer's reassembly inspection time shall be in addition to the field service time specified and shall be included in the Contract Price. This time shall not be eligible for payment under any cash allowance item.
- C. In the case where equipment is to be installed by others, then the supplying contractor shall be responsible for its reassembly. If reassembly is necessary and the unit(s) are to be set inside an enclosure or building, reassemble the equipment inside said enclosure. The equipment once reassembled shall be turned over to the installing contractor as specified below.

### 1.03 PACKING

- A. Transport products in containers, crates, boxes or similar means such that the products are protected against damage that may occur during transportation.
- B. All parts shall be packaged separately or in container where parts of similar systems are grouped.
- C. Part numbers shall be indicated on the individual part. Use indelible ink to mark part numbers.
- D. All equipment shipments shall be included with a parts list showing a description (name) of the part and the manufacturer's part number.
  - 1. The parts list shall be shipped in a plastic zippered envelope with the words "Parts List" lettered on it in indelible ink.
  - 2. The parts list shall be placed inside the shipping container so that it is on the top of the contents.



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- E. Equipment shall be shipped with storage, handling and installation instructions.
  - 1. The Engineer reserves the right to withhold payment for equipment delivered to the site until such time as the storage, handling and installation instructions are supplied by the manufacturer.
  - 2. In the case where operation and maintenance manuals have been provided by the manufacturer, which includes the installation instructions, then the installation instructions shall also be included with the equipment shipment.
- F. Delicate instruments and devices, reagents, chemicals, and glassware shall be shipped in packaging normally provided by the manufacturer.
- G. The Contractor shall require the manufacturer to be responsible for the proper packing of all products.

#### 1.04 SHIPPING AND DELIVERY

- A. Product deliveries shall be accompanied with a bill of lading indicating the place of origination and the Contractor's purchase order number.
- B. Inspect shipments immediately upon delivery, to assure compliance with requirements of the Contract Documents and those products are undamaged.
- C. Promptly remove damaged material and unsuitable items from the job site.
- D. Provide equipment and personnel to handle products by methods to prevent soiling; disfigurement or damage.

#### 1.05 STORAGE

- A. Store sensitive products and all spare parts in weather tight, climate controlled enclosures in an environment favorable to product.
- B. Store and protect products in accordance with the manufacturer's instructions.
- C. All other products that are to be installed underground or products such as pipe, valves, and fittings shall be stored outdoors but shall be blocked off the ground and covered with impervious sheet coverings.
- D. Store fabricated products above the ground on blocking or skids.
- E. Store loose granular materials in well-drained areas on solid surfaces to prevent mixing with foreign matter.
- F. Provide adequate ventilation to avoid condensation.
- G. In accordance with manufacturer's instructions protect bearings, couplings, shafts, rotating components, and assemblies. Protection of said equipment shall be continuous until the time the equipment is placed into permanent service.



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- H. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.
- I. Do not store volatile liquids in any building on site.
- J. Storage of products shall be the responsibility of the supplying contractor. The installing contractor shall take all necessary precautions to protect the equipment being furnished by others.
- K. Store with seals and labels intact and legible.

#### 1.06 EQUIPMENT INSTALLED BY OTHERS

- A. All products, except products noted on the Drawings or specified, shall be furnished and installed under this Contract.
  - 1. Only noted or specified products shall be furnished under this Contract for installation by others.
  - 2. If it is not noted on the Drawings or specified, then the product shall be furnished and installed under the Contract.
- B. The Contractor shall furnish these products to the Owner. These products shall be stored as specified above.
- C. The Owner will then advise the installing contractor that the product(s) are ready for installation.
  - 1. In the case where the product is stored in a proper enclosure, but not stored inside the building to be constructed under this project, then the installing contractor shall move the product into the building to a location adjacent to the final location shown on the Drawings.
  - 2. In all cases, the installing contractor shall be responsible for moving from storage, uncrating, anchoring, mounting and installing the product as required by the Contract Documents.
- D. The Contractor and installing contractor(s) shall be present at the time the equipment is turned over to the Owner. Immediately thereafter, the Owner will turn the product over to the installing contractor for installation.
- E. The Owner, Contractor, Architect and the installing contractor shall inspect the condition of the product at this time.
  - 1. Any defects in the product will be noted and the Contractor will be advised to make all repairs immediately.
  - 2. The installing contractor shall still be required to install the product if the damage is deemed cosmetic by the Architect.
  - 3. The manufacturer's installation instructions or wiring diagram shall be turned over to the installing contractor at this time by the Contractor.
  - 4. Any damage occurring to the product during moving, setting and mounting the unit(s) shall be the responsibility of the installing contractor.
  - 5. The Contractor is advised to take photographs to document the condition prior to it being turned over to the installing contractor.
  - 6. The installing contractor is advised to take photographs to document the condition prior to its acceptance.



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- F. The supplied unit(s) remain the property of the Contractor until final acceptance of the work.
- G. Any damage caused to the unit(s) due to improper installation, workmanship, and non-compliance with the manufacturer's written installation instructions shall be the responsibility of the contractor who caused said damage. The burden of proof shall rest with the supplying Contractor.
- H. In the event the Contractor discovers misuse, abuse or improper installation of the unit(s) by the installing contractor, then he shall immediately notify the Architect in writing. The Architect will investigate the accusations and make a determination. The Architect's determination shall be binding and agreed to by both parties.
- I. If the Architect's determination substantiates the accusations of the Contractor, then the Contractor shall install the unit(s), the costs for which will be paid for as extra work. All costs associated with the extra work change order, including engineering and attorney fees of the Owner and Contractor will be deducted from money due the installing contractor.

#### 1.07 PROTECTION OF WORK

- A. The Contractor shall protect the installed work. All costs for protection shall be borne by the Contractor. Provide coverings as necessary to protect installed products from damage, from traffic and subsequent construction operations. Remove when no longer needed.
- B. Cover and protect equipment from dust, moisture or physical damage. Protect finished floor surfaces prior to allowing equipment or materials to be moved over such surfaces. Maintain finished surfaces clean, unmarred and suitably protected until accepted by the Owner.
- C. Additional time required to secure replacements and to make repairs will not be considered by the Architect to justify any extension in the Contract Time of Completion. In the event of the damage, promptly make replacement and repairs to the approval of the Engineer at no additional costs.

#### PART 2 - PRODUCTS

NOT USED

#### PART 3 - EXECUTION

NOT USED

#### END OF SECTION



## PART 1 - GENERAL

### 1.01 SUMMARY

- A. This Section This Section includes administrative and procedural requirements for cutting and patching.
- B. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition, and does not apply to new construction procedures, except when new construction is already completed and must be cut and patched due to incorrect sequencing of work and/or improper coordination.
- C. Provisions of this Section apply to the construction activities of each prime Contractor. Contractors are reminded that they will need to hire tradesman skilled in the patching finishes that are impacted by their activities. (e.g. plumber will need to have a mason patch back existing walls opened for new roughing , Heating Contractor will hire carpenter for existing ceiling replacements after new air handler installed, etc )
- D. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 1 Section 013100 - PROJECT MANAGEMENT AND COORDINATION for procedures for coordinating cutting and patching with other construction activities.
  - 2. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
    - a. Requirements of this Section apply to all trades. Refer to specification sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

### 1.02 RESPONSIBILITIES

- A. General: Each Prime Contractor is responsible to perform cutting and patching for their portion of the Work. Patching work shall restore all surfaces to their original condition.
- B. Cutting and patching of completed new construction required due to out of sequence construction and/or improper coordination is the responsibility of the prime Contractor responsible for the out of sequence construction or improper coordination. Cutting and patching of new construction for these purposes shall be accomplished by the General Construction Contractor and shall be paid for by the prime Contractor responsible. The Owner's Construction Representative shall be the sole judge of the responsibility for such cutting and patching, and shall prepare change orders to delete monies from the responsible prime Contract and credit those monies to the General Construction Contractor.
  - 1. The Contractor shall cooperate with the Owner's Construction Representative to accomplish cutting and patching with minimal disruption to the construction and at reasonable cost.

### 1.03 SUBMITTALS

- A. Cutting and Patching Plan: If the Owner requires approval of cutting and patching procedures before proceeding, submit a plan describing cutting and patching procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the submittal:
  - 1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.



## CUTTING AND PATCHING

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2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
3. List products to be used and firms or entities that will perform the work.
4. Indicate dates when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated, including their new locations, and those that will be required to be placed temporarily out-of-service. Indicate how long service will be disrupted and when service will be restored..
6. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of additional reinforcement with the original structure.
  - a. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of unsatisfactory work.
  - b. Submit a detailed plan, including an area-specific drawing, indicating how dust mitigation and noise control will be handled to prevent disruption/dusting of adjacent areas. Identify routes of waste removal and dumpster locations, material handling from staging area, placement of protections, controls, etc.

### 1.04 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
  1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
    - a. Bearing and retaining walls.
    - b. Structural concrete.
    - c. Structural steel.
    - d. Lintels.
    - e. Structural decking.
    - f. Miscellaneous structural metals.
    - g. Exterior curtain-wall construction.
    - h. Equipment supports.
    - i. Piping, ductwork, vessels, and equipment
- B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.
  1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
    - a. Primary operational systems and equipment.
    - b. Air or smoke barriers.
    - c. Water, moisture, or vapor barriers.
    - d. Membranes and flashings.
    - e. Fire protection systems.
    - f. Noise and vibration control elements and systems.
    - g. Control systems.
    - h. Communication systems.
    - i. Conveying systems.
    - j. Electrical wiring systems.



- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.

#### 1.05 WARRANTY

- A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner so as not to void any existing or required warranties.
- B. Utilize manufacturer certified installers for work on any existing roof area, which are impacted, to ensure that the owners current warranty is maintained in full force.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS, GENERAL

- A. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible. If identical materials are not available or cannot be used, use materials whose installed performance will be equal to or surpass that of the existing materials.

### PART 3 - EXECUTION

#### 3.01 INSPECTION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
  - 1. Before proceeding, meet at the Project Site with parties involved in cutting and patching, including but not limited to; Owner's Construction Representative, mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

#### 3.02 PREPARATION

- A. Temporary Support: Provide temporary support of work to be cut, including shoring, lumber, plywood, etc.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with the use of adjoining areas or interruption of free passage to adjoining areas.
- D. Avoid cutting existing pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.



### 3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
  - 1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
  - 4. Comply with requirements of applicable Division 2 Sections where cutting and patching requires excavating and backfilling.
  - 5. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible or to match existing where exposed for aesthetic appearance. Comply with specified tolerances. Patching will be done utilizing tradesmen skilled for the surface to be patched. (e.g. mason for brickwork, ceramic tile installer for ceramic tile, etc )
  - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing. If patched area does not match the adjacent surface, the contractor will refinish the entire wall to achieve a uniform surface.
  - 3. Where removal of walls or partitions extends one finished area into another, patch and repair floor, ceiling and wall surfaces in the new space. Provide an aligned, flush surface of uniform color and appearance. Provide grinding, leveling and/or self-leveling of surfaces since adjacent room surfaces may vary in elevation. Remove existing floor and wall coverings and ceiling materials and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.
  - 4. Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

### 3.04 CLEANING

- A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features



CUTTING AND PATCHING  
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before applying primer and paint or other finishing materials. Restore damaged pipe covering to its original condition

**END OF SECTION**



## CLEANING

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### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. Cleaning during the progress of the work.
- B. Maintain all premises and public properties/roadways free from accumulations of waste, debris, dirt, mud and rubbish caused by operations on a daily basis.
- C. At completion of work, remove waste materials, rubbish tools, equipment, machinery and surplus materials, and clean all exposed surfaces; leave project clean, dust free and ready for occupancy,
- D. Remove all overspray caused by construction operations from adjacent construction, surfaces and vehicles.
- E. Cleaning prior to final payment

#### 1.02 SCHEDULING

- A. Sequence, schedule, and coordinate final cleaning work with the final cleaning work to be performed by other contractors.

#### 1.03 SAFETY REQUIREMENTS

- A. Standards: Maintain project in accord with OSHA and other applicable safety and insurance standards.
- B. Hazard Control / Cleaning Products:
  - 1. Store volatile organic containing / flammable waste in covered metal containers and remove from premises daily.
  - 2. Provide adequate ventilation during use of VOC containing or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances, OTC regulations and local anti-pollution laws and ordinances.
- D. Dispose of all waste legally, off-site.
- E. Do not dispose of VOC / flammable waste such as mineral spirits, oil, or paint thinners into storm or sanitary drains.
- F. Do not burn or bury rubbish and waste materials on project site.
- G. Do not dispose of any waste into surface waters such as ponds, lakes, streams or waterways

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Cleaning materials shall be appropriate to the surface and materials being cleaned.
- B. Materials: Use only cleaning materials recommended by manufacturer of surface to be cleaned



- C. Provide pads to protect finished surfaces from cleaning materials.

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Post signs to advise building occupants if wet and/or slippery floor conditions exist during cleaning operations.

### 3.02 PROGRESS CLEANING

- A. Keep all buildings, enclosures, and confined areas where work is being performed under the Contract free from unattended combustible materials.
- B. Remove rust spots as they develop.
- C. Execute daily cleaning to ensure that building, grounds, and public properties and roadways are maintained free from accumulations of waste materials, rubbish, dirt, mud and dust.
- D. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- E. Each day, each contractor shall adhere to the following:
  - 1. Areas of intense activity, such as cutting and sawing must be swept clean and reorganized at the end of each day. Utilize dust control methods such as plastic containment enclosures and/or wetting of surfaces.
  - 2. Areas of moderate activity, such as installation of plumbing, ductwork, electrical work, must be returned to operating / safe order at the end of each day.
  - 3. Debris below scaffolds including areas of shoring and re-shoring, must be kept sufficiently cleared and consolidated to keep walkways free of tripping hazards at all times. These work areas must also be swept clean immediately after removal of scaffolds, shoring, etc.
  - 4. All swept up debris, waste materials, and packing must be removed and placed in a dumpster by the end of the workday.
  - 5. All stored material must be protected and kept in good order.
  - 6. As portions of the work are completed, all used and excess materials shall be removed promptly.
  - 7. Daily Clean-up and good housekeeping is the responsibility of each contractor individually and will be monitored by the Owner's Construction Representative. If any contractor fails to perform cleaning when directed or does not properly clean within 4 hours of being notified by Owner's Construction Representative, the Owner will hire others and charge the responsible contractor accordingly.
  - 8. Contractors shall promptly comply with requests to organize scattered materials.
  - 9. Daily sweep and weekly damp mop of all work areas.
- F. Each Contractor is responsible for furnishing dumpsters or other such containers as required for collection, storage and legal disposal of all debris and rubbish resultant from their individual construction operations (both demolition and daily construction debris). The Owner's Construction Representative shall direct contractors to locate, maintain and move such containers as necessary and legally dispose of waste as containers are filled. Each contractor shall separate and recycle waste as required by authorities, contract requirements and local regulations / ordinances.



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- G. The General Construction Contractor shall vacuum clean areas when ready to receive finish painting, and continue vacuum cleaning, on an as needed basis, until the building(s) is (are) ready for Substantial Completion.
- H. Handle materials in a controlled manner to reduce handling to the extent possible. Do not drop or throw materials from heights.
- I. Schedule cleaning operations so that dust and other containment resulting from cleaning process will not fall on wet, newly painted surfaces.

### 3.03 FINAL CLEANING

- A. Remove dust, dirt, grease, stains, paint drips and runs, plastic, labels, tape, glue, rope, and other foreign materials from visible interior and exterior surfaces.
- B. Do not move dust from spot to spot. Remove directly from the surface on which it lies by the most effective mean such as appropriately treated dusting cloths or vacuum tools. When doing high cleaning, do not allow dust to fall from high areas onto furniture and equipment below.
- C. Dismantle and remove all temporary structures, scaffolding, fencing, and equipment. Remove waste materials, rubbish, lumber, block, tools, machinery, and surplus materials.
- D. Perform the following prior to final payment:
  - 1. Broom clean all exterior concrete surfaces and vacuum clean all interior concrete surfaces.
  - 2. Dust and spot clean painted and vinyl covered walls.
  - 3. Clean and polish all unpainted metal on doors such as trim, hardware, kickplates and doorknobs.
  - 4. Vacuum clean carpets and mats.
  - 5. Vacuum clean acoustic ceilings.
  - 6. Repair, patch, and touch-up marred surfaces to specified finish and to match adjacent surfaces.
  - 7. Remove foreign material from exterior masonry.
  - 8. Wash and clean interior and exterior window surfaces. All glass shall be clean and free of dirt, grime, streaks and excessive moisture. Wipe drippings and other marks from windowsills, sashes and woodwork. Do not use windowsills in lieu of ladders.
  - 9. Polish bright metal by damp wiping and drying with a suitable cloth. If a polished appearance is not thereby produced, apply appropriate metal polish.
  - 10. Clean and polish all stainless steel surfaces, including control panels supplied under this Contract.
  - 11. Clean furniture and equipment in accordance with manufacturers instructions.
  - 12. Clean all paved roads, lots and drives which were paved as work under this Contract and all existing paved surfaces using a mechanical street cleaner.
  - 13. Repair or repaint damaged pavement markings.
  - 14. Vacuum and clean with a damp cloth light fixtures, including glass and plastic lenses, ceiling and wall mounted lights, cover panels, side panels, louvers, fixture frames and lamps.
  - 15. Clean supply vents and exhaust grilles. Clean gutters and downspouts.
  - 16. Remove all rust spots and stains from new and pre-existing concrete, painted surfaces, and all other surfaces.
  - 17. Wash all existing floors that were in any way impacted by the construction operations.



## CLEANING

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18. Rake clean landscaped surfaces. Final mow all areas grassed and sodded during the work.
19. Inspect interior and exterior surfaces, and all work areas, to verify that the entire work is clean and ready for use by the Owner. The project will not be considered substantially complete until all final cleaning has been performed.
20. Vacuum the inside of all control panels provided under this Contract after the panel has been wired.
21. Magnet sweep all exterior lawn and walkway areas to ensure that stray nails / screws, etc. remain in lawn areas nor on walkways.

### 3.04 RUBBISH REMOVAL

- A. A. Contractors shall comply with all Local, State and Federal Laws, Codes and Requirements regarding recycling and trash or rubbish removal.

**END OF SECTION**



PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Work of this Section includes the following:
  - 1. Starting systems
  - 2. Testing, adjusting, and balancing
  - 3. Updating of manufacturer's operations and maintenance manuals and wiring diagrams

1.02 STARTING SYSTEMS

- A. The Contractor shall coordinate, schedule, and sequence the start-up of various equipment and systems.
- B. Where the start-up of a system or piece of equipment is dependent upon the start-up of other system(s) or equipment, then the Contractor shall schedule and sequence the start-ups to coincide.
- C. Notify the Architect at least 14 calendar days prior to the start-up of each item or system so that he can schedule the startup with the Owner and utilities.
- D. Where applicable, verify that each piece of equipment or system has been checked for proper:
  - 1. lubrication,
  - 2. drive rotation,
  - 3. belt tension,
  - 4. motor starter heater size,
  - 5. fuse size,
  - 6. water pressures,
  - 7. terminal connections,
  - 8. control sequence,
  - 9. for conditions which may cause damage or delay the start-up procedure.
- E. Verify that the equipment has been installed in accordance with the manufacturer's requirements.
- F. Complete all pre-startup checklists that may be required by the system vendor.
  - 1. In the event that start-up activities are delayed as a result of the Contractor's failure to properly check the completed installation and a manufacturer's representative is on the job site waiting for corrections to be made, then the Architect may, at his/her sole discretion, postpone start-up until such time as the corrections have been made without any extra costs.
  - 2. The Owner may deduct from money due the Contractor the excess cost of engineering associated with having the Architect present during the start-up.
  - 3. The deduction shall be equal to the Architect's effective billing rate times the total number of hours delayed during the start-up activities.
- G. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- H. Verify that wiring and support components for equipment are complete and tested.
- I. Execute start-up under supervision of applicable Contractor's personnel in accordance with manufacturer's instructions.



STARTING AND ADJUSTING  
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- J. The Contractor shall have the job site superintendent present during all start-up activities.
- K. Provide manufacturer's authorized technician at the site when specified and in accordance with the requirements contained in Section 014500 - Quality Control.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**END OF SECTION**



PART 1 - GENERAL

1.01 SUBMITTALS

- A. Submit the following documents to the Architect before Substantial Completion:
  - 1. Project Record Documents as specified in Section 017839 - PROJECT RECORD DOCUMENTS.
  - 2. Operations and Maintenance Manuals prepared in accordance with Section 017823 - OPERATING AND MAINTENANCE DATA and be updated as a result of start-up activities.
  - 3. Manufacturer's Start-up Reports (MSR's) for all equipment and systems where manufacturer field time is specified.
    - a. Each MSR shall be signed by the field technician(s) who attended the start-up.
    - b. If the manufacturer is taking exception to the installation or if the warranty is voided, he shall provide a statement to that effect and provide reasons and justification to explain the company's position.
  - 4. One binder containing original counterparts of all warranties, guarantees, bonds, or affidavits as specified in the Technical Specification Sections. These documents shall contain the original signatures and be placed in a plastic sheet protector, one document per protector.
  - 5. Spare parts checklist itemizing all spare parts furnished under the Contract summarized by Section.
  - 6. Electrical Underwriter's Certificate where the prime construction contract includes electrical construction or where this Contract is for a Prime Electrical Construction Contract.
- B. Submit the following items to the Architect with the final application for payment:
  - 1. Final Application for Payment and continuation (G702 and G703)
  - 2. Contractor's Certified Payrolls
  - 3. OSHA cards for all workers
  - 4. Contractor's Affidavit of Payment of Debts and Claims (G706)
  - 5. Contractor's Affidavit of Release of Liens (G706A)
  - 6. Final list of Subcontractors (G705)
  - 7. Subcontractor's Affidavit of Payment of Debts and Claims (G706) - (for each subcontractor used)
  - 8. Subcontractor's Affidavit of Release of Liens (G706A) - (for each subcontractor used)
  - 9. Consent of Surety to Final Payment (G707)
  - 10. 2 year Maintenance Bond - 100% of contract including change orders
  - 11. Contractors letter guaranteeing workmanship 2 years
  - 12. Product data, Maintenance manuals and Warranty Information
  - 13. As Built Documentation
  - 14. Attic Stock / Spare Parts (provide proof of delivery transmittal signed by owner)
  - 15. Asbestos Affidavit and waste manifests
- C. All documents shall be complete, signed, dated, and notarized (where applicable) and be subject to the Architect's acknowledgment of receipt or approval.



CLOSEOUT SUBMITTALS  
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PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section specifies the requirements for Operations and Maintenance Manuals required to be prepared by system suppliers and equipment manufacturers.
- B. The Contractor shall submit Operations and Maintenance Manuals for all equipment.
- C. Where the technical specifications call for the submission of manuals, said manuals shall be prepared in accordance with the requirements contained herein. It being understood that manuals shall be submitted for all equipment even if it is not specifically called out in the specifications.

1.02 MANUAL CONTENTS AND FORMAT

- A. All Operations and Maintenance Manuals shall be as specified hereinafter.
- B. The binder shall be 8 1/2" x 11", metal hinge, vinyl, large capacity by National or Equal. It shall show the name of the manufacturer or supplier and project name on the spine of the binder.
- C. A cover shall be provided showing the names of the Owner, Architect, Contractor, and Manufacturer.
  - 1. It shall show the Contractor's order number and manufacturer's project number.
  - 2. The address of the manufacturer, service station telephone number, project title, contract number, and year shall also be shown.
- D. Provide tabbed color dividers for each separate product and system.
  - 1. The name of the product shall be typed on the tab.
  - 2. A separate tab shall also be provided for information such as troubleshooting instructions, spare parts list, etc.
- E. An index shall be provided in the back of the binder, with a separate tab, providing a quick way for the operator to find key and important topics contained in the manual.
- F. A separate listing for all charts, graphs, tables, figures and shop drawings shall be provided directly following the table of contents.
- G. Each manual shall contain one (1) copy of all shop drawings deemed in compliance with the Contract Documents by the Architect submitted for the equipment or system for which the manual is prepared.
  - 1. Only these shop drawings shall be included in the manual.
  - 2. All shop drawings larger than 8 1/2" x 11" shall be folded and placed in a heavy duty, top loading plastic sheet protector with the title of the drawing showing; one (1) drawing per protector page.
- H. For systems being furnished with control panels, each manual shall contain a catalog cut for every electrical device installed inside the control panel or motor control center.
- I. Each manual shall contain the following as a minimum:
  - 1. Table of contents
  - 2. Final version of the warranty statement approved by the Architect



3. Nameplate data of each component, year of installation, contract number and specification number
  4. Name, address and telephone number of the manufacturer and the manufacturer's local representative(s)
  5. Installation instructions
  6. Maintenance requirements include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair and reassembly instructions; and alignment, adjusting, balancing, and checking instructions
  7. Troubleshooting guide and corrective maintenance (repair) procedures for all electrical and mechanical equipment. These guides shall list the most frequent and common problems, together with the symptoms, possible causes of the trouble, and remedies
  8. Drawings (pictures or exploded views) which clearly depict and identify each part, suitable for assembly and disassembly of entire system and each component
  9. Wiring and control diagrams, if applicable
  10. Panelboard circuit directories including electrical service characteristics, if applicable
  11. Part list with current prices; ordering information; and recommended quantities of spare parts to be maintained in storage
  12. Name, address, and telephone number of nearest parts supply house and nearest authorized repair service center.
  13. List of recommended spare parts and the recommended number of each per unit and per group of units.
- J. Submit two (2) copies of a preliminary draft manual at least fourteen (14) calendar days prior to the date set for start-up.
1. The Architect will review the manual for content and compliance with these specifications.
  2. Written comments will be provided, but the manual will not be returned.
  3. This copy of the manual will be retained on the site until such time as the final, updated manual is provided.
- K. Two (2) weeks after the date the unit was placed into service and the Owner has gained beneficial use, submit five (5) copies of the final updated Operations and Maintenance Manual. Refer to Section 017500 - STARTING AND ADJUSTING for requirements related to updating the manual(s).
- L. Where installation instructions are not included with the manual, they shall be shipped at least ten (10) days prior to the date the equipment is scheduled for installation.

### 1.03 RETAINAGE

- A. The Architect will retain from payment due the Contractor, for failure to submit manuals as specified, an amount equal to 2% of the scheduled value for the equipment or system for which the manual applies. This Contract requirement only applies when a manual is specified to be provided in the Technical Specifications for a particular system or piece of equipment.

## PART 2 - PRODUCTS

NOT USED

## PART 3 - EXECUTION

NOT USED

**END OF SECTION**



OPERATING AND MAINTENANCE DATA  
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PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section includes:
  - 1. Maintenance of documents
  - 2. Recording of record information
  - 3. Submission of record documents

1.02 PLANS AND SPECIFICATIONS FURNISHED TO THE CONTRACTOR

- A. Two (2) complete sets of Contract Documents (plans, specifications and addenda) will be furnished to the Contractor.
- B. Additional sets will be furnished to the Contractor at \$250 per set.
- C. One (1) complete set of Contract Documents shall be kept in the field office.

1.03 MAINTENANCE OF DOCUMENTS

- A. The Contractor shall maintain at the site one (1) set of the following: drawings, specifications, addenda, change orders, approved shop drawings, test reports, operation and maintenance manuals, and shop drawing log.
- B. The Contractor shall make these documents available for use by the Owner, Architect, regulatory agencies and other parties designated by the Owner.
- C. Maintain these documents in a clean, dry, legible condition throughout the entire contract period.
- D. Make documents available at all times for inspection by Engineer and Owner.

1.04 RECORDING OF RECORD INFORMATION

- A. Affix a stamp to each Contract Drawing and Shop Drawing reading as follows: "RECORD DOCUMENT" - "NAME OF PROJECT" - "CONTRACTOR NAME" in 2-inch high printed letters. The stamp shall be specifically prepared for this project.
- B. Keep the record documents current as the work progresses. Record information concurrent with construction progress.
- C. Legibly mark the Contract Plans to record actual construction, including, but not limited to the following:
  - 1. All as-built work.
  - 2. All approved field changes and conditions.
- D. Shop Drawings: Maintain as record documents. Legibly mark-up to show changes made due to field conditions encountered during construction.
- E. The contractor shall be required to keep accurate record drawings, in hard copy format, as well as AutoCAD 2008 or newer digital format, of the work actually performed which is in accordance with the contract documents and that which deviates from them.



- F. As work progresses, the contractor shall maintain an on the field set of hard copy drawings, a complete and accurate set of field notes clearly delineating all work as it is actually installed. This set of drawings shall be available at all times for the engineer to review and shall be examined at all jobsite meetings.
- G. Do not permanently conceal any work until required information has been recorded.
- H. Concurrent with each submission of a contractor partial payment requisition, the contractor shall submit a paper copy of up to date record drawings, including the latest corrections. Incomplete or inaccurate record drawings will be sufficient grounds for refusal to process payment requisition.
- I. Final record drawings shall be hard copy format and AutoCAD 2008 or newer digital format, completed by a competent draftsman or CAD operator with the following information as a minimum:
  - 1. Complete and accurate listing of all imbedded and underground conduits. Drawings shall accurately show all exact locations of conduits including horizontal and vertical dimensions and explicitly list all conduits and fix their location off of building structures or monuments. Imbedded conduits shall include those below the floor slab and those installed in building walls.
  - 2. Complete and accurate listing of all exposed conduits.
  - 3. In a neatly logically organized table, a complete listing of all conduits with each individual conduit being given its own number and each junction or pullbox being given its own designation. This table shall list the starting and ending point of all major home runs along with all branch conduits and conduits main function.
  - 4. In a neatly logically organized table a complete listing of all conductors within the conduits listed above. Each conductor table shall individually list the conductors installed within each conduit and for each conductor shall designate the starting point or termination, complete path through all conduits and junction boxes, final point or termination, conductor color or marking and circuit function. This shall be done for each conductor installed through the project.
  - 5. An accurate frontal elevation drawing of all motor control centers, control centers other major equipment installed. Drawings shall show all devices as installed in door or faces or equipment.
  - 6. A dimensioned drawing of all equipment installed including generator sets, load banks, transformers and all major equipment.
  - 7. Field changes of dimension and detail.
  - 8. Changes made by Change Order.
  - 9. Clarification plans not on original contract.
- J. At final contract closeout engineer will review preliminary set of final record drawings. After approval of this submission, the contractor will be required to submit one (1) set of hard copy drawings and one (1) digital CD-ROM disc including all as-built drawings in AutoCAD 2008 or newer format as detailed above. No portion of the line item bid amount in the proposal for the record drawings will be released until final record drawings have been submitted and approved. No exceptions.

#### 1.05 SUBMITTAL OF RECORD DOCUMENTS

- A. At Substantial Completion, the Contractor shall deliver one (1) preliminary record set of as-built documents to the Architect with all changes conspicuously ballooned or otherwise emphasized.



- B. The work will not be considered substantially complete until such time as the preliminary record documents are delivered and acceptable to the Architect. Mark this set "Preliminary Record Drawings".
- C. Prior to Final Completion, the Contractor shall conform the preliminary record drawings to the comments made by the Architect. The Contractor shall provide one (1) set of full-scale paper as-built drawings and one (1) electronic copy in portable document format (PDF).
- D. As-built drawings shall be the same size as the Contract Drawings, with 1/2-inch margins space on three sides and a 2-inch margin on the left side for binding.
- E. Each drawing shall bear in the title box the words "FINAL RECORD DRAWINGS" and the name of the Contractor in heavy black lettering 1/2 inch high and be certified as complete and accurate.
- F. As a convenience, Architect will make available to the Contractor electronic media of the Contract Drawings for the sole purpose of the Contractor preparing as-built drawings.
- G. Electronic media made available is without guarantee of compatibility with the Contractor's software or hardware.
  - 1. If the Contractor wishes to take advantage of this offer, the Contractor will be required to execute an indemnification and hold harmless agreement with the Architect.
- H. At completion of project prior to the final project close-out meeting, deliver marked-up record documents to the Architect.
- I. Accompany submittal with transmittal letter, containing:
  - 1. Date.
  - 2. Project title and number.
  - 3. Contractor's name and address.
  - 4. Title and number of each record document.
  - 5. Certification that each document as submitted is complete and accurate.
  - 6. Signature of Contractor or its authorized representative.
- J. Upon completion of the work, Contractor shall prepare and furnish the Engineer a set of marked up prints of the as-built drawings for review, with all changes conspicuously circled or otherwise emphasized.
- K. Prior to final payment, Contractor shall conform the drawings to the comments made by the Engineer and then provide the Owner a complete reproducible sets of as-built drawings on 24" x 36" paper and a set in digital CD-ROM AutoCAD 2008 or newer format.
- L. As-built drawings shall be the same size as the contract drawings, with 1/2 inch margins space on three sides and a 2 inch margin on the left side for binding. Each drawing shall bear the legend "AS-BUILT" and the name of the Contractor in heavy black lettering 1/2 inch high and be certified as complete and accurate.
- M. As a convenience, Architect will make available to the Contractor electronic media of the contract drawings for the sole purpose of the Contractor preparing as-built drawings. Electronic media made available is without guarantee of compatibility with the Contractor's software or hardware. If the Contractor wishes to take advantage of the offer, the Contractor will be required to execute an indemnification and hold harmless agreement with the Architect and pay the



Architect \$20.00 per contract set to cover the cost of providing electronic media. Payment shall be by check, payable to H2M architects + engineers, in advance of picking up the requested materials. Electronic media shall be returned to the Architect upon acceptance of the as-built drawings by the Owner.

**1.06 RELATED DOCUMENTS**

- A. Provide certificate of release of liens if requested by the Architect.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. The Section includes the requirements for delivering spare parts specified to be furnished under the provisions of the Contract Documents.

### 1.02 QUALITY ASSURANCE

- A. Spare parts shall be delivered as complete assemblies direct from the manufacturer such that the part is fully functional and ready to be installed.

### 1.03 DELIVERY, STORAGE AND HANDLING OF SPARE PARTS

- A. Comply with the requirements of Section 016500 for packing, delivery, storage and handling requirements for all parts delivered to the site of the work.
- B. All spare parts required to be furnished under a Section of the Specifications shall be packaged in one separate box, crate or container with the words "SPARE PARTS" lettered on all sides of the container.
- C. The equipment name or system name for which the spare parts are being provided shall also be lettered on the container.
- D. A separate packing list for the spare parts shall be included in the container.
- E. The Contractor shall store all spare parts indoors immediately upon delivery of the spare parts to the site. Spare parts will not be accepted by the Owner/Architect if the spare parts have been stored outdoors for more than 8 hours upon delivery to the site.
- F. The storage location shall be secure.

### 1.04 TURN OVER OF SPARE PARTS

- A. Spare parts shall be turned over to the Owner/Architect approximately two (2) weeks prior to the Architect's preparation of the Final Punch List.
  - 1. Spare parts will not be accepted until this time.
  - 2. The Certificate of Substantial Completion will not be issued until all spare parts are delivered.
- B. The following procedure shall be followed:
  - 1. The Contractor shall provide a formal letter of transmittal listing the name or description of the part, part number, model number, manufacturer (or supplier), and system component name and the Section where it was specified to be provided.



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PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. Work of this Section includes the requirements for demonstrating and training of installed systems, equipment, and products.
- B. Manufacturer field services and the credit for unused service time is also included herein.

### 1.02 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual specification sections require field services to be provided, said services shall be provided by qualified, authorized and factory trained representative(s) of the manufacturer (supplier).
- B. Field services shall generally consist of:
  - 1. installation supervision,
  - 2. verify terms of the manufacturer's warranty,
  - 3. equipment and system calibration,
  - 4. startup supervision,
  - 5. and operation and maintenance instructions to the Owner's employees.
- C. Such services do not include service time to correct a factory fault, correct problems resulting from a factory wiring or control logic error, or errors caused by poor or improper installation by the Contractor.
- D. The time specified to be provided under the specification sections shall be exclusive of travel time to and from the facility or site. For the purposes of this Contract, one (1) day shall be defined as eight (8) hours exclusive of breaks or mealtime.
- E. The times specified to be provided by the manufacturer does not relieve the manufacturer from providing sufficient service time to place the equipment or systems into satisfactory operation and to obtain the specified performance. The manufacturer shall provide, as a minimum, the times specified in the Specification Sections.

### 1.03 SUBMITTALS

- A. The Contractor shall prepare a list of all manufacturer specified field time required by the technical specifications. Compile this summary listing and submit it to the Engineer for review in accordance with the requirements contained in Section 013300 - SUBMITTALS.
- B. Manufacturer's Startup Reports

### 1.04 QUALITY CONTROL

- A. The Contractor shall adhere to all instructions provided by the manufacturer's authorized representative.
- B. All verbal instructions necessary to satisfy performance of the equipment or the system shall be immediately provided by the Contractor. The manufacturer shall document all verbal orders in writing at a time suitable to the Contractor.



- C. All written instructions provided in operation, maintenance, and installation guides and manuals, provided by the manufacturer of such equipment and or system, shall be complied with by the Contractor.
- D. The Contractor shall comply with all manufacturer requirements such that written or implied warranties remain in full force during the time period so specified elsewhere in the technical specifications.
- E. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- F. Actions and/or non performance by the Contractor that may void manufacturer warranties shall not constitute a release of the specified warranty, and all warranty claims made by the Owner shall be paid for by the Contractor as if the manufacturer's warranty was still in effect.

#### 1.05 SCHEDULING - FIELD SERVICES

- A. The Contractor shall arrange field service on dates acceptable to the Owner and Architect.
- B. The service visits shall be scheduled at least 2 weeks in advance so that the Owner and Architect can adequately staff the date.
- C. Operator training will not be allowed until such time as the Manufacturer's Operation and Maintenance Manuals have been supplied and approved by the Architect.
  - 1. The field service technician shall review the contents of the manual with designated employees of the Owner.
  - 2. Field services will not be deemed provided until the MSR is provided.

#### 1.06 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel prior to date of Substantial Completion.
- B. Utilize manufacturer's and vendor's Operation and Maintenance Manuals as basis for instruction. Review contents of the manual with the Owner's personnel in detail to explain all aspects of operation and maintenance.
- C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of the equipment or of the system.
- D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- E. The Contractor shall arrange to have the manufacturer's Operation and Maintenance Manuals updated with information that has been added during start-up activities.
- F. The final manual shall contain the most recent information and reflect all operational and maintenance aspects of the final installed and functioning system or equipment component of the system.
- G. Any changes to control panel wiring diagrams or interconnection wiring schematics shall be made and new prints provided as an update to previously approved manuals.



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- H. Manufacturer field time shall be as specified in individual Sections of the Technical Specifications.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. Removal of portable equipment from work areas.
- B. Protection of existing equipment and building.

### 1.02 SCHEDULING

- A. Schedule Work to coincide with other trades and availability of site access.
- B. Complete new utility installations prior to connections to existing utilities.
- C. Coordinate removal, storage and protection of equipment connected to electrical systems scheduled to be re-installed.

## PART 2 - PRODUCTS

NOT USED

## PART 3 - EXECUTION

### 3.01 PROTECTION OF EXISTING WORK

- A. All existing structures, piping, utilities or materials stored in the existing building shall be protected against damage as may be required by the Architect. The Contractor shall be responsible for any damage to the existing or installed works and appurtenances during construction operations and such damage shall be corrected by replacing the items damaged to their original condition and position at the Contractor's cost and expense and to the satisfaction of the Architect.

### 3.02 PREPARATION PRIOR TO WORKING ON WELL PUMP

- A. All portable equipment shall be removed from the area of the existing building indicated. Equipment shall be stored as directed by the Architect.
- B. Existing equipment which can not be removed from the building shall be protected from damage by the Contractor's operation. Walls, floor and equipment shall be adequately covered by plywood or other protective materials for the duration of the contract. No holes are permitted to be cut through the walls of the existing building, nor is the roof, any walls or other permanent part of the existing building to be removed to facilitate work under this Contract unless indicated otherwise. The Contractor shall protect existing water piping and water containing equipment from freezing.
- C. All existing equipment in the existing building shall be protected from damage by the Contractor's operation.
- D. The Contractor shall be required to restore the existing building and equipment to a condition equal to what it was prior to the Contractor starting work. Any equipment that is damaged shall be replaced at the Contractor's cost.



### 3.03 CLEANING UP

- A. The Contractor shall keep the project site free from waste materials and rubbish during the progress of the work and shall make a thorough cleaning of the building and site when the work is completed. Cleaning shall be done to the satisfaction of the Architect.
- B. After completion of the contract, the Contractor will be required to clean up the site of all spoil, clays, gravel, etc. and level off all trenches and pits and dispose of all material as directed by the Engineer and leave the site in as good condition as at the beginning of the contract.
- C. All material used to protect the pump station shall be removed. All portable equipment shall be reinstalled in the pump station and all piping shall be reconnected. The pump station shall be restored to its prior condition and shall be left broom cleaned.
- D. Buildings, grounds, paving, sidewalk, etc. shall be restored and left in a condition at least equal to that existing prior to the beginning of the work.

**END OF SECTION**



## 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. Demolition and removal of selected portions of building or structure.
  - 2. Demolition and removal of selected site elements.
  - 3. Salvage of existing items to be reused or recycled.

### 1.03 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

### 1.04 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. 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 demolition shall remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

### 1.05 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.
  - 6. Review procedures for turning over salvaged materials to the Owner and protected off-site storage of materials to be reused in the work of the project.



#### 1.06 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting the public, pedestrian access and circulation areas and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective 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. 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, salvaged and delivered to Owner prior to start of demolition.
- E. 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.

#### 1.07 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.

#### 1.08 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

#### 1.09 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective 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 selective demolition.
- D. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use and is included in this Division of the specifications. Examine report and / or the appropriate specification section 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.
  - 3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.
- 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 demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.
  - 2. Provide a Fire Watch or other method acceptable to the authority having jurisdiction should the existing fire protection facilities have to be shut down during the work.
  - 3. Do not disable or disrupt building fire or life safety systems without five (5) days prior written notice to Architect.

#### 1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

### 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 ANSI/ASSE A10.6 and NFPA 241.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.



- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to 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 demolition operations.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
  - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.
  - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

### 3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  - 1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- B. Existing Services/Systems to be removed, relocated, or abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies. Provide 5 days notice to the Architect prior to any utility shut-downs.
  - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap, plug or reconnect remaining piping with same or compatible piping material.
    - b. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - c. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug or reconnect remaining ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.



### 3.03 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-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 Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: 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 demolition area and to and from occupied portions of building. Maintain existing required widths of egress pathways throughout.
  - 2. Provide temporary weather protection, during interval between selective demolition 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 demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- C. Temporary Shoring: 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 demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.

### 3.04 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition 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, to minimize disturbance of adjacent surfaces. 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 fire watch and portable fire-suppression devices during flame-cutting operations.
  - 5. Maintain adequate ventilation when using cutting torches.
  - 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  - 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.



## SELECTIVE DEMOLITION

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8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  9. Dispose of demolished items and materials promptly.
- B. Reuse of Building Elements: Project has been designed to result in end-of-Project rates for reuse of building elements as follows. Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.
1. Building Structure and Shell: 75 percent.
  2. Nonshell Elements: 50 percent.
  3. Nonshell Elements: 40 percent.
- 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 or as indicated on Drawings.
  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 demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 1 inch (25 mm) at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- D. 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.

### 3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished 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 demolished materials.



- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.07 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

### 3.08 SELECTIVE DEMOLITION SCHEDULE

- A. Remove, store, relocate, salvage and protect the following materials and equipment:
  - 1. Existing Items to Be Removed: Items indicated on contract drawings and items listed in technical specifications sections.
  - 2. Existing Items to Be Removed, relocated and/or Salvaged: Items required to be removed, relocated salvaged and/or stored to complete the work as indicated or called for in these construction documents.
- B. Existing Items to Remain: to complete and conform to the work of the project shall be as indicated on the contract drawings and items listed in the technical specification sections.

### END OF SECTION



## PART 1 - GENERAL

### 1.01 SCOPE OF WORK

- A. The purpose of this section is to outline the scope of work and work procedures required for the removal of asbestos cement pipe that is anticipated to be encountered during the water main replacement on Greenvale Circle & related intersections.
- B. Determination of limits of asbestos cement pipe was based upon Water Department records. The contractor shall verify in field via test holes the limits of asbestos cement pipe prior to commencement of the water main replacement.
- C. Federal (EPA and OSHA) and New York State Department of Labor (NYS DOL) regulations (ICR 56.11), Project Drawings and Project Documents.
- D. The Contractor shall be aware of all conditions of the Project and is responsible for field verifying quantities and locations of all ACM to be removed prior to submission of any bid. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work. The quantities presented in this Specification are approximate and should not be used solely as the basis for any bid. In the event that suspect materials not included in this Specification are encountered while the work is in progress, such material shall be tested for asbestos content or assumed positive for asbestos content, and removed in accordance with the procedures herein. Any discovery of new ACM shall not delay the progress of the Work. Payment for any additional work shall be considered on a case-by-case basis by the Engineer.
- E. Any special job conditions, including any site specific variances are to be obtained by the Contractor, and any fees associated with procuring these variances shall be included in the Contractor's bid.
- F. The Contractor's industrial hygiene practices during asbestos abatement will be monitored by the Owner's representative; however the Contractor shall be responsible for monitoring his own construction safety work practices for compliance with the OSHA regulations.

### 1.02 SPECIAL JOB CONDITIONS

- A. Any special job conditions, including any site specific variances, are to be obtained by the Contractor, and any fees associated with procuring these variances shall be included in the Contractor's bid.

### 1.03 CODES, 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 Federal and New York State regulations. Where more stringent requirements are specified, adhere to the more stringent requirements.
- C. State Licenses: The Contractor must maintain current licenses pursuant to the New York State Department of Labor (NYSDOL) and New York State Department of Environmental Conservation (NYSDEC) for all Work related to this Project.



#### 1.04 APPLICABLE STANDARDS AND REGULATIONS

- A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:
- B. Federal Regulations:
  - 1. 29 CFR 1910.1001, "Asbestos" (OSHA)
  - 2. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
  - 3. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
  - 4. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
  - 5. 29 CFR 1926, "Construction Industry" (OSHA)
  - 6. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophyllite, and Actinolite" (OSHA)
  - 7. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
  - 8. 40 CFR 61, Subpart A, "General Provisions" (EPA)
  - 9. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (EPA)
  - 10. 49 CFR 171-172, Transportation Standards (DOT)
- C. New York State Regulations:
  - 1. 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 (DOL)
  - 2. 6 NYCRR, Parts 360, 364, Disposal and Transportation (DEC)
  - 3. 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (DOH)
  - 4. New York State Department of Health (NYSDOH) Training Requirements
- D. Standards and Guidance Documents:
  - 1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
  - 2. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
  - 3. EPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)
  - 4. EPA 530-SW-85-007, Asbestos Waste Management Guidance

#### 1.05 DELIVERY AND STORAGE

- A. Deliver non-contaminated 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/damage away from wet/damp surfaces and under cover.
  - 2. Protect materials from unintended contamination.
- C. Remove damaged or deteriorated materials from the job site. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified.

### 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.

## 2.02 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. If the asbestos waste has the potential to damage or puncture the disposal bags, burlap sacks shall be utilized as a liner inside the polyethylene disposal bags to prevent puncture or damage to the disposal bags. In addition, 30 or 55 gallon capacity fiber or metal drums capable of being sealed air and water tight may also be used. 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. Any material placed in labeled containers or bags, whether turned inside out or not shall be disposed of as ACM waste.

## 2.03 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.

## PART 3 - EXECUTION

### 3.01 GENERAL REQUIREMENTS

- A. Perform all asbestos removal Work using wet removal procedures. Dry removal procedures are not permitted.

### 3.02 WORK AREA PREPARATION

- A. Work Area preparation shall be performed in accordance with NYSDOL regulations.
- B. Remove all items attached to or in contact with ACM. 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.

### 3.03 REMOVAL OF ASBESTOS CONTAINING MATERIALS

- A. Asbestos-containing materials shall be removed in accordance with NYSDOL and the Contract Documents.
- 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. Power or pressure washers will not be allowed to be used for asbestos removal or clean-up procedures.

### 3.04 ACM WASTE CONTAINERIZING, DECONTAMINATION AND LOAD OUT PROCEDURES

- A. Packaging of ACM shall conform to OSHA Standard 29 CFR 1926.1101, DOT 49 CFR 171, 172, and 173, and EPA Standard 40 CFR Part 61 and the requirements as herein specified.
- B. 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.

### 3.05 WORK AREA CLEANING PROCEDURES

- A. Following completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, decontamination procedures shall be followed as specified in Title 15 or ICR 56, unless otherwise stated in the variance(s) utilized by the Contractor.
- B. Following each decontamination procedure the PM shall inspect the Work Area for effectiveness of the cleanings. If necessary, additional cleaning shall be performed by the Contractor as directed by the PM.

### 3.06 ASBESTOS WASTE

- A. Applicable Regulations: All asbestos waste shall be stored, transported and disposed of in accordance with the following regulations as applicable:
  - 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

### **END OF SECTION**



**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Cleaning of existing concrete surfaces.
- B. Resurfacing of concrete surfaces having spalled areas and other damage.
- C. Repair of deteriorated concrete.
- D. Scope of Work: As indicated on drawings.

**1.02 REFERENCE STANDARDS**

- A. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.
- B. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2021.
- C. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2020b.
- D. ASTM C150/C150M - Standard Specification for Portland Cement; 2016.
- E. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.
- F. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2020a.
- G. ASTM C928/C928M - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs; 2020a.
- H. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.
- I. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

**1.03 ADMINISTRATIVE REQUIREMENTS**

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.
- C. Manufacturer's Qualification Statement.
- D. Cleaner's Qualification Statement.



#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified and with minimum of 3 years of documented experience.

#### 1.06 MOCK-UP(S)

- A. Crack Injection: Prepare one sample of each type of injection.
- B. Horizontal Surface Repair: Total of 10 foot (3 m) square area, demonstrating each type of repair.
- C. Locate mock-up(s) where directed.
- D. Re-work mock-up(s) until satisfactory to Architect.
- E. Satisfactory mock-up(s) may remain as part of the work.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturers' instructions for storage, shelf life limitations, and handling of products.

### PART 2 PRODUCTS

#### 2.01 CLEANING MATERIALS

- A. Degreaser:
  - 1. Manufacturers:
    - a. Euclid Chemical Company; Euco Clean and Strip: [www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).
    - b. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; CITREX: [www.lmcc.com/#sle](http://www.lmcc.com/#sle).
    - c. SpecChem, LLC; Orange Peel-Citrus Cleaner: [www.specchemllc.com/#sle](http://www.specchemllc.com/#sle).
    - d. United Gilsonite Laboratories; DRYLOKae Concrete Cleaner and Degreaser: [www.ugl.com/#sle](http://www.ugl.com/#sle).
- B. Detergent: Non-ionic detergent.

#### 2.02 CEMENTITIOUS PATCHING AND REPAIR MATERIALS

- A. Manufacturers:
  - 1. Adhesives Technology Corporation: [www.atcepoxy.com/#sle](http://www.atcepoxy.com/#sle).
  - 2. Euclid Chemical Company: [www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).
  - 3. Kaufman Products Inc: [www.kaufmanproducts.net/#sle](http://www.kaufmanproducts.net/#sle).
  - 4. The QUIKRETE Companies: [www.quikrete.com/#sle](http://www.quikrete.com/#sle).
  - 5. W. R. Meadows, Inc: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
- B. Bonding Slurry: Water-based latex admixture complying with ASTM C1059/C1059M, combined with Portland cement and sand in accordance with admixture manufacturer's instructions.
  - 1. Admixture Manufacturers:
    - a. Euclid Chemical Company; AKKRO-7T: [www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).



- b. The QUIKRETE Companies; QUIKRETE® Concrete Bonding Adhesive: [www.quikrete.com/#sle](http://www.quikrete.com/#sle).
  - c. W. R. Meadows, Inc; Acry-lok: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
- C. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar.
- 1. In-place material resistant to freeze/thaw conditions.
  - 2. Mixed with water or latex type bonding agent in proportions as recommended by manufacturer.
  - 3. Dry Material: Complies with ASTM C928/C928M.
  - 4. Integral corrosion inhibitor.
  - 5. Manufacturers:
    - a. Adhesives Technology Corporation; HARD-ROK JET PATCH: [www.atcepoxy.com/#sle](http://www.atcepoxy.com/#sle).
    - b. Kaufman Products Inc; Patchwell Deep Light: [www.kaufmanproducts.net/#sle](http://www.kaufmanproducts.net/#sle).
    - c. The QUIKRETE Companies; QUIKRETE® Fast Set Repair Mortar: [www.quikrete.com/#sle](http://www.quikrete.com/#sle)
    - d. W. R. Meadows, Inc; Meadow-Crete GPS: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).

## 2.03 ACCESSORIES

- A. Anchoring Adhesive: Self-leveling or non-sag as applicable.
  - 1. Self-Leveling Epoxy Products:
    - a. Euclid Chemical Company; DURAL FAST SET LV: [www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).
    - b. W. R. Meadows, Inc; Rezi-Weld 1000, Rezi-Weld (IP), or Rezi-Weld 3/2: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
- B. Portland Cement: ASTM C150/C150M, Type I, grey.
- C. Sand: ASTM C33/C33M or ASTM C404; uniformly graded, clean.
- D. Water: Clean and potable.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means acceptance of substrate.

### 3.02 CLEANING EXISTING CONCRETE

- A. Clean concrete surfaces of dirt or other contamination using the gentlest method that is effective.
  - 1. Try the gentlest method first, then, if not clean enough, use a less gentle method taking care to watch for impending damage.
  - 2. Clean out cracks and voids using same methods.
- B. The following are acceptable cleaning methods, in order from gentlest to less gentle:
  - 1. Water washing using low-pressure, maximum of 100 psi, and, if necessary, brushes with natural or synthetic bristles.



2. Increasing the water washing pressure to maximum of 400 psi.
  3. Adding detergent to washing water; with final water rinse to remove residual detergent.
  4. Steam-generated low-pressure hot-water washing.
- C. Do not use any of the following cleaning methods, unless otherwise indicated:
1. Brushes with wire bristles, grinding with abrasives, solvents, hydrochloric or muriatic acid, sodium hydroxide, caustic soda, or lye.
  2. Soap or detergent that is not non-ionic.
  3. Alkaline cleaning agents.
  4. Acidic cleaning agents.
  5. Abrasive blasting.

### 3.03 CONCRETE SURFACE REPAIR USING CEMENTITIOUS MATERIALS

- A. Clean concrete surfaces, cracks, and joints of dirt, laitance, corrosion, and other contamination using method(s) specified above and allow to dry.
- B. Apply coating of bonding agent to entire concrete surface to be repaired.
- C. Fill voids with cementitious mortar flush with surface.
- D. Apply repair mortar by steel trowel to a minimum thickness of 1/4 inch (6 mm) over entire surface, terminating at a vertical change in plane on all sides.
- E. Trowel finish to match adjacent concrete surfaces.

**END OF SECTION**



## 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 maintenance of unit masonry consisting of brick clay masonry restoration and cleaning as follows:
  - 1. Unused anchor removal.
  - 2. Repairing unit masonry, including replacing units.
  - 3. Painting steel uncovered during the work.
  - 4. Repointing joints.
  - 5. Cleaning exposed unit masonry surfaces.

### 1.03 UNIT PRICES

- A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."
  - 1. Unit prices apply to authorized work covered by quantity allowances.

### 1.04 DEFINITIONS

- A. Very Low-Pressure Spray: Under 100 psi (690 kPa).
- B. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- C. Medium-Pressure Spray: 400 to 800 psi (2750 to 5510 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- D. High-Pressure Spray: 800 to 1200 psi (5510 to 8250 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- E. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of masonry units to freezing and thawing.

### 1.05 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on masonry units as follows.
  - 1. Existing Brick: Test each type of existing masonry unit indicated for replacement, according to testing methods in ASTM C 67 for compressive strength, 24-hour cold-water absorption, 5-hour boil absorption, saturation coefficient, and initial rate of absorption (suction). Carefully remove existing units from locations designated by Architect. Take testing samples from these units.
  - 2. Replacement Brick: Test each proposed type of replacement masonry unit, according to sampling and testing methods in ASTM C 67 for compressive strength, 24-hour cold-water absorption, 5-hour boil absorption, saturation coefficient, and initial rate of absorption (suction).
- B. Mortar Analysis Test: The Contractor shall take two (2) (1/2 cup min.) samples of existing mortar from building joint areas approved by the Owner. Mortar shall be sent in closed protective containers to one of the laboratories listed herein and analyzed. Analysis shall



consist of, but not be limited to, the following tests: Wet Chemical/Gravimetric Analysis & Examination, Chemical Dissolution, Aggregate Separation, and Sieve Mesh Analysis. All tests shall be completed in conformance with the latest applicable ASTM Standard(s). Test results shall include a detailed list of materials to make an exact replica of the existing mortar including strength, material composition, sources, color, and texture. Results shall include aggregate identification/source(s) and characteristics; binder to aggregate ratio and probable original mix based on lab analysis and historical investigations. Based upon the findings of the mortar analysis, the Contractor shall prepare two samples of the mortar for selection by the Architect and the Owner prior to the production of Mortar utilized for the project. Contractor shall have testing shall be preformed at one of the following testing labs:

1. Jablonski Berkowitz Conservation Inc. (certified WBE)  
40 W. 27th St., Suite 1201  
NY, NY 10001  
(212) 532-7775
2. ICR (Integrated Conservation Resources)  
32 Old Slip  
NY, NY 10005  
(212) 947-4499
3. BCA (Building Conservation Associates)  
44 E 32nd St.  
NY, NY 10016  
(212) 777-1300
4. Wiss, Janney, Elstner  
330 Pfingsten Road  
Northbrook, IL 60062-2095  
(847) 272-7740

#### 1.06 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.
- B. Samples for Verification: For the following:
  1. Each type of masonry unit to be used for replacing existing units. Include sets of Samples as necessary to show the full range of shape, color, and texture to be expected.
    - a. For each brick type, provide straps or panels containing at least four bricks. Include multiple straps for brick with a wide range.
  2. Each type, color, and texture of pointing mortar in the form of sample mortar strips, 6 inches (150 mm) long by 1/4 inch (6 mm) (13 mm) wide, set in aluminum or plastic channels.
    - a. Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.

#### 1.07 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For including field supervisors and restoration workers and testing service.
- B. Restoration Program.
- C. Cleaning Program.



## 1.08 QUALITY ASSURANCE

- A. Restoration Specialist Qualifications: Engage an experienced, preapproved masonry restoration and cleaning firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard unit masonry is not sufficient experience for masonry restoration work.
  - 1. At Contractor's option, work may be divided between two specialist firms: one for cleaning work and one for repair work.
  - 2. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that clay masonry restoration and cleaning work is in progress. Supervisors shall not be changed during Project except for causes beyond the control of restoration specialist firm.
  - 3. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types they will be performing.
  - 4. Masonry cleaning and repair work shall conform to National Park Service Preservation Briefs #1 and #2.
- B. Chemical-Cleaner Manufacturer Qualifications: A firm regularly engaged in producing masonry cleaners that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and Project-site inspection and assistance at no additional cost.
- C. Source Limitations: Obtain each type of material for masonry restoration (face brick, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.
- D. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising performance and preventing damage due to worker fatigue.
- E. Restoration Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials and Project site.
  - 1. Include methods for keeping pointing mortar damp during curing period.
  - 2. If materials and methods other than those indicated are proposed for any phase of restoration work, add to the Quality-Control Program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project and worker's ability to use such materials and methods properly.
- F. Cleaning Program: Prepare a written cleaning program that describes cleaning process in detail, including materials, methods, and equipment to be used, protection of surrounding materials, and control of runoff during operations.
  - 1. If materials and methods other than those indicated are proposed for any phase of restoration work, add to the Quality-Control Program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project and worker's ability to use such materials and methods properly.



- G. Cleaning and Repair Appearance Standard: Cleaned and repaired surfaces are to have a uniform appearance as viewed from 20 feet (6 m) away by Architect. Perform additional paint and stain removal, general cleaning, and spot cleaning of small areas that are noticeably different, so that surface blends smoothly into surrounding areas.
- H. Mockups: Prepare mockups of restoration and cleaning to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation.
  - 1. Repointing: Rake out joints in 2 separate areas, each approximately 36 inches (900 mm) high by 48 inches (1200 mm) wide for each type of repointing required and repoint one of the areas.
  - 2. Cleaning: Clean an area approximately 25 sq. ft. (2.3 sq. m) for each type of masonry and surface condition.
    - a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions. Do not use cleaners and methods known to have deleterious effect.
    - b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample panels for negative reactions.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- I. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review methods and procedures related to masonry restoration and cleaning including, but not limited to, the following:
    - a. Construction schedule. Verify availability of materials, Restoration Specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
    - b. Materials, material application, sequencing, tolerances, and required clearances.

#### 1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver masonry units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons.
- B. Deliver other materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- E. Store lime putty covered with water in sealed containers.
- F. Store sand where grading and other required characteristics can be maintained and contamination avoided.

#### 1.10 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit masonry restoration and cleaning work to be performed according to manufacturers' written instructions and specified requirements.



- B. Repair masonry units and repoint mortar joints only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least 7 days after completion of the Work unless otherwise indicated.
- C. Cold-Weather Requirements: Comply with the following procedures for masonry repair and mortar-joint pointing unless otherwise indicated:
  - 1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 40 and 120 deg F (4 and 49 deg C).
  - 2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for 7 days after repair and pointing.
- D. Hot-Weather Requirements: Protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above unless otherwise indicated.
- E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.
- F. Clean masonry surfaces only when air temperature is 40 deg F (4 deg C) and above and is predicted to remain so for at least 7 days after completion of cleaning.

#### 1.11 COORDINATION

- A. Coordinate masonry restoration and cleaning with public circulation patterns at Project site. Public circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

#### 1.12 SEQUENCING AND SCHEDULING

- A. Order replacement materials at earliest possible date to avoid delaying completion of the Work.
- B. Order sand and gray Portland cement for pointing mortar immediately after approval of mockups. Take delivery of and store at Project site a sufficient quantity to complete Project.
- C. Perform masonry restoration work in the following sequence:
  - 1. Remove plant growth.
  - 2. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
  - 3. Remove paint.
  - 4. Clean masonry surfaces.
  - 5. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
  - 6. Repair masonry, including replacing existing masonry with new masonry materials.
  - 7. Rake out mortar from joints to be repointed.
  - 8. Point mortar and sealant joints.
  - 9. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.



10. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
- D. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in masonry units to comply with "Masonry Unit Patching" Article. Patch holes in mortar joints to comply with "Repointing Masonry" Article.

## PART 2 - PRODUCTS

### 2.01 MASONRY MATERIALS

- A. Face Brick: Provide face brick, including specially molded, ground, cut, or sawed shapes where required to complete masonry restoration work matching existing masonry.
  1. Provide units with colors, color variation within units, surface texture, size, and shape to match existing brickwork.
    - a. For existing brickwork that exhibits a range of colors or color variation within units, provide brick that proportionally matches that range and variation rather than brick that matches an individual color within that range.
  2. Special Shapes:
    - a. Provide specially molded, 100 percent solid shapes for applications where core holes or "frogs" could be exposed to view or weather when in final position and where shapes produced by sawing would result in sawed surfaces being exposed to view.
    - b. Provide specially ground units, shaped to match patterns, for arches and where indicated.
    - c. Mechanical chopping or breaking brick, or bonding pieces of brick together by adhesive, are not acceptable procedures for fabricating special shapes.
  3. Tolerances as Fabricated: Comply with tolerance requirements in ASTM C 216, Type FBS or to match existing brick masonry tolerances.
- B. Salvaged Brick: When available, obtain salvaged brick from Owner from location shown on Drawings. Clean off residual mortar prior to re-use.
- C. Brick Staining: Custom blended hand applied emulsion to match existing brick masonry palette utilizing NawKaw Emulsion Color Treatment NECT-90 as manufactured by NawKaw Corporation (1-905-542-7893) or approved equal.

### 2.02 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.
  1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Mortar Sand: ASTM C 144 unless otherwise indicated.
  1. Color: Provide natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.
  2. For pointing mortar, provide sand with rounded edges.
  3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.



- D. Mortar Pigments: Natural and synthetic iron oxides, compounded for mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.
- E. Mortar Staining: Nawkaw Corporation - NECT-90 Nawkaw emulsion color treatment or approved equal.
- F. Water: Potable.

## 2.03 MANUFACTURED REPAIR MATERIALS

- A. Masonry Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching masonry.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. Cathedral Stone Products, Inc.; Jahn M100 Terra Cotta and Brick Repair Mortar.
    - b. Or approved equal.
  - 2. Use formulation that is vapor- and water permeable (equal to or more than the masonry unit), exhibits low shrinkage, has lower modulus of elasticity than the masonry units being repaired, and develops high bond strength to all types of masonry.
  - 3. Use formulation having working qualities and retardation control to permit forming and sculpturing where necessary.
  - 4. Formulate patching compound used for patching brick in colors and textures to match each masonry unit being patched. Provide sufficient number of colors to enable matching the color, texture, and variation of each unit.

## 2.04 PAINT REMOVERS

- A. Alkaline Paste Paint Remover: Manufacturer's standard alkaline paste formulation for removing paint coatings from masonry.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. PROSOCO; Enviro Klean Safety Peel 2.
    - b. Or approved equal.

## 2.05 CLEANING MATERIALS

- A. Water: Potable.
- B. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium polyphosphate, 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.
- C. Job-Mixed Mold, Mildew, and Algae Remover: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium polyphosphate, 5 quarts (5 L) of 5 percent sodium hypochlorite (bleach), and 15 quarts (15 L) of hot water for every 5 gal. (20 L) of solution required.
- D. Nonacidic Gel Cleaner: Manufacturer's standard gel formulation, with pH between 6 and 9 that contains detergents with chelating agents and is specifically formulated for cleaning masonry surfaces.
- E. Nonacidic Liquid Cleaner: Manufacturer's standard mildly alkaline liquid cleaner formulated for removing mold, mildew, and other organic soiling from ordinary building materials, including polished stone, brick, aluminum, plastics, and wood.
  - 1. Products: Subject to compliance with requirements, provide the following:



- a. PROSOCO; Enviro Klean 2010 All Surface Cleaner.
- b. Or Approved Equal.

## 2.06 ACCESSORY MATERIALS

- A. Liquid Strippable Masking Agent: Manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, and polished stone surfaces from damaging effects of acidic and alkaline masonry cleaners.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. PROSOCO; Sure Klean Strippable Masking.
    - b. Or Approved Equal.
- B. Masonry Repair Anchors, Spiral Type: Type 304 stainless-steel spiral rods designed to anchor to backing and veneer. Anchors are flexible in plane of veneer but rigid perpendicular to it.
  - 1. Provide driven-in anchors designed to be installed in drilled holes and relying on screw effect rather than adhesive to secure them to backup and veneer.
  - 2. Products: Subject to compliance with requirements, provide the following:
    - a. Heckmann Building Products Inc.; #391 Remedial Tie.
    - b. Hohmann & Barnard, Inc.; Helix Spiro-Ties.
    - c. Or approved equal.
- C. Sealant Materials:
  - 1. Provide manufacturer's standard chemically curing, elastomeric sealant(s) of base polymer and characteristics indicated below that comply with applicable requirements in Section 079200 - JOINT SEALANTS.
    - a. Single-component, non-sag urethane sealant.
  - 2. Colors: Provide colors of exposed sealants to match colors of masonry adjoining installed sealant unless otherwise indicated.
- D. Joint-Sealant Backing:
  - 1. 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.
  - 2. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where acceptable.
- E. Setting Buttons: Resilient plastic buttons, nonstaining to masonry, sized to suit joint thicknesses and bed depths of masonry units without intruding into required depths of pointing materials.
- F. Masking Tape: Nonstaining, nonabsorbent material, compatible with pointing mortar, joint primers, sealants, and surfaces adjacent to joints; that will easily come off entirely, including adhesive.
- G. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer complying with SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating.
  - 1. Use coating requiring no better than SSPC-SP 3, "Power Tool Cleaning" surface preparation according to manufacturer's literature or certified statement.
  - 2. Use coating with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).



- H. Surface Applied Silane/Siloxane Waterproofers: Breathable, water-based, silane / siloxane blended water-repellant shall be provided for waterproofing purposes should the integral means specified herein not produce the level of waterproofing required. Material for waterproofing Concrete Masonry Units shall be MasterProtect H 185 as manufactured by BASF or approved equal. Material for Brick Masonry units shall be MasterProtect H 177 as manufactured by BASF or approved equal.
- I. Miscellaneous Products: Select materials and methods of use based on the following, subject to approval of a mockup:
  - 1. Previous effectiveness in performing the work involved.
  - 2. Little possibility of damaging exposed surfaces.
  - 3. Consistency of each application.
  - 4. Uniformity of the resulting overall appearance.
  - 5. Do not use products or tools that could do the following:
    - a. Remove, alter, or in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
    - b. Leave a residue on surfaces.

## 2.07 MORTAR MIXES

- A. Preparing Lime Putty: Slake quicklime and prepare lime putty according to appendix to ASTM C 5 and manufacturer's written instructions.
- B. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
  - 1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not re-temper or use partially hardened material.
- C. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.
  - 1. Mortar Pigments: Where mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.
- D. Do not use admixtures in mortar unless otherwise indicated.
- E. Mortar Proportions: Mix mortar materials in the following proportions:
  - 1. Pointing Mortar for Brick: 1 part Portland cement, 2 parts lime, and 6 parts sand.
    - a. Add mortar pigments to produce mortar colors required.
  - 2. Rebuilding (Setting) Mortar: Comply with ASTM C 270, Proportion Specification, Type N unless otherwise indicated; with cementitious material limited to Portland cement and lime.

## 2.08 CHEMICAL CLEANING SOLUTIONS

- A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended by chemical-cleaner manufacturer.



- B. Acidic Cleaner Solution for Brick: Dilute with water to produce hydrofluoric acid content of 3 percent or less, but not greater than that recommended by chemical-cleaner manufacturer.

## PART 3 - EXECUTION

### 3.01 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
  - 1. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.
- B. Comply with chemical-cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical-cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
  - 1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
  - 2. Keep wall wet below area being cleaned to prevent streaking from runoff.
  - 3. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
  - 4. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
  - 5. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- C. Prevent mortar from staining face of surrounding masonry and other surfaces.
  - 1. Cover sills, ledges, and projections to protect from mortar droppings.
  - 2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
  - 3. Immediately remove mortar in contact with exposed masonry and other surfaces.
  - 4. Clean mortar splatters from scaffolding at end of each day.

### 3.02 UNUSED ANCHOR REMOVAL

- A. Remove masonry anchors, brackets, wood nailers, and other extraneous items no longer in use unless identified as historically significant or indicated to remain.
  - 1. Remove items carefully to avoid spalling or cracking masonry.
  - 2. Where directed, if an item cannot be removed without damaging surrounding masonry, do the following:
    - a. Cut or grind off item approximately 3/4 inch (20 mm) beneath surface and core drill a recess of same depth in surrounding masonry as close around item as practical.
    - b. Immediately paint exposed end of item with two coats of anti-rust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended dry film thickness per coat. Keep paint off sides of recess.
  - 3. Patch the hole where each item was removed unless directed to remove and replace the masonry unit.



### 3.03 BRICK REMOVAL AND REPLACEMENT

- A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated or are to be reused. Carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
  - 1. When removing single bricks, remove material from center of brick and work toward outside edges.
- B. Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.
- C. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.
- D. Remove in an undamaged condition as many whole bricks as possible.
  - 1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
  - 2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.
  - 3. Store brick for reuse. Store off ground, on skids, and protected from weather.
  - 4. Deliver cleaned brick not required for reuse to Owner unless otherwise indicated.
- E. Clean bricks surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.
- F. Replace removed damaged brick with other removed brick in good quality, where possible, or with new brick matching existing brick, including size. Do not use broken units unless they can be cut to usable size.
- G. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
  - 1. Maintain joint width for replacement units to match existing joints.
  - 2. Use setting buttons or shims to set units accurately spaced with uniform joints.
- H. Lay replacement brick with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 gr/30 sq. in. per min. (30 g/194 sq. cm per min.). Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.
  - 1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
  - 2. Rake out mortar used for laying brick before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing masonry, and at same time as repointing of surrounding area.
  - 3. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

### 3.04 REANCHORING VENEERS

- A. Install masonry repair anchors in horizontal mortar joints and according to manufacturer's written instructions. Install at not more than 16 inches (400 mm) o.c. vertically and 32 inches (800 mm) o.c. horizontally unless otherwise indicated. Install at locations to avoid penetrating flashing.



- B. Recess anchors at least 5/8 inch (16 mm) from surface of mortar joint and fill recess with pointing mortar.

### 3.05 PAINTING STEEL UNCOVERED DURING THE WORK

- A. Inspect steel exposed during masonry removal. Where Architect determines that it is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:
  - 1. Remove paint, rust, and other contaminants according to SSPC-SP 3, "Power Tool Cleaning", as applicable to meet paint manufacturer's recommended preparation.
  - 2. Immediately paint exposed steel with two coats of anti-rust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).
- B. If on inspection and rust removal, the cross section of a steel member is found to be reduced from rust by more than 1/16 inch (1.6 mm), notify Architect before proceeding.

### 3.06 MASONRY UNIT PATCHING

- A. Patch the following masonry units unless another type of replacement or repair is indicated:
- B. Remove and replace existing patches unless otherwise indicated or approved by Architect.
- C. Patching Bricks:
  - 1. Remove loose material from masonry surface. Carefully remove additional material so patch will not have feathered edges but will have square or slightly undercut edges on area to be patched and will be at least 1/4 inch (6 mm) thick, but not less than recommended by patching compound manufacturer.
  - 2. Mask adjacent mortar joint or rake out for repointing if patch will extend to edge of masonry unit.
  - 3. Mix patching compound in individual batches to match each unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.
  - 4. Rinse surface to be patched and leave damp, but without standing water.
  - 5. Brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.
  - 6. Place patching compound in layers as recommended by patching compound manufacturer, but not less than 1/4 inch (6 mm) or more than 2 inches (50 mm) thick. Roughen surface of each layer to provide a key for next layer.
  - 7. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the masonry unit. Shape and finish surface before or after curing, as determined by testing, to best match existing masonry unit.
  - 8. Keep each layer damp for 72 hours or until patching compound has set.

### 3.07 CLEANING MASONRY, GENERAL

- A. Proceed with cleaning in an orderly manner; work from bottom to top of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.
- B. Use only those cleaning methods indicated for each masonry material and location.
  - 1. Do not use wire brushes or brushes that are not resistant to chemical cleaner being utilized. Do not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.



2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.
    - a. Equip units with pressure gages.
  3. For chemical-cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray tip.
  4. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
  5. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F (60 and 71 deg C) at flow rates indicated.
- C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.
- D. Water Application Methods:
1. Water-Soak Application: Soak masonry surfaces by applying water continuously and uniformly to limited area for time indicated. Apply water at low pressures and low volumes in multiple fine sprays using perforated hoses or multiple spray nozzles. Erect a protective enclosure constructed of polyethylene sheeting to cover area being sprayed.
  2. Water-Spray Applications: Unless otherwise indicated, hold spray nozzle at least 6 inches (150 mm) from surface of masonry and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.
- E. Chemical-Cleaner Application Methods: Apply chemical cleaners to masonry surfaces to comply with chemical-cleaner manufacturer's written instructions; use brush or spray application. Do not spray apply at pressures exceeding 50 psi (345 kPa). Do not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.
- F. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.
1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.
- G. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

### 3.08 PAINT REMOVAL

- A. Paint Removal with Alkaline Paste Paint Remover:
1. Remove loose and peeling paint using low -pressure spray, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
  2. Allow paint remover to remain on surface for period recommended by manufacturer.
  3. Rinse with hot water applied by low -pressure spray to remove chemicals and paint residue.
  4. Repeat process if necessary to remove all paint.
  5. Apply acidic cleaner or manufacturer's recommended afterwash to masonry, while surface is still wet, using low-pressure spray equipment or soft-fiber brush. Let cleaner or afterwash remain on surface as a neutralizing agent for period recommended by chemical cleaner or afterwash manufacturer.



### 3.09 CLEANING BRICKWORK

- A. Cold-Water Soak:
  - 1. Apply cold water by intermittent spraying to keep surface moist.
  - 2. Use perforated hoses or other means that will apply a fine water mist to entire surface being cleaned.
  - 3. Apply water in cycles with at least 30 minutes between cycles.
  - 4. Continue spraying until surface encrustation has softened sufficiently to permit its removal by water wash, as indicated by cleaning tests.
  - 5. Continue spraying for 72 hours.
  - 6. Remove soil and softened surface encrustation from masonry with cold water applied by low-pressure spray.
- B. Cold-Water Wash: Use cold water applied by low-pressure spray.
- C. Detergent Cleaning:
  - 1. Wet masonry with cold water applied by low-pressure spray.
  - 2. Scrub masonry with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that masonry surface remains wet.
  - 3. Rinse with cold water applied by low -pressure spray to remove detergent solution and soil.
  - 4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.
- D. Mold, Mildew, and Algae Removal:
  - 1. Wet masonry with hot water applied by low-pressure spray.
  - 2. Apply mold, mildew, and algae remover by brush or low-pressure spray.
  - 3. Scrub masonry with medium-soft brushes until mold, mildew, and algae are thoroughly dislodged and can be removed by rinsing. Use small brushes for mortar joints and crevices. Dip brush in mold, mildew, and algae remover often to ensure that adequate fresh cleaner is used and that masonry surface remains wet.
  - 4. Rinse with cold water applied by medium -pressure spray to remove mold, mildew, and algae remover and soil.
  - 5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.
- E. Nonacidic Gel Chemical Cleaning:
  - 1. Apply non-acidic gel cleaner in 1/8-inch (3-mm) thickness by brush, working into joints and crevices. Apply quickly and do not brush out excessively so area will be uniformly covered with fresh cleaner and dwell time will be uniform throughout area being cleaned.

### 3.10 CLEANING BROWNSTONE TERRA COTTA

- A. Mild Acidic Chemical Cleaning:
  - 1. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use a steam cleaning.



### 3.11 REPOINTING MASONRY

- A. Rake out and repoint joints to the following extent:
  - 1. All joints in areas indicated.
  - 2. Joints where mortar is missing or where they contain holes.
  - 3. Cracked joints where cracks can be penetrated at least 1/4 inch (6 mm) by a knife blade 0.027 inch (0.7 mm) thick.
  - 4. Cracked joints where cracks are 1/16 inch (1.6 mm) or more in width and of any depth.
  - 5. Joints where they sound hollow when tapped by metal object.
  - 6. Joints where they are worn back 1/4 inch (6 mm) or more from surface.
  - 7. Joints where they are deteriorated to point that mortar can be easily removed by hand, without tools.
  - 8. Joints where they have been filled with substances other than mortar.
  - 9. Joints indicated as sealant-filled joints.
- B. Do not rake out and repoint joints where not required.
- C. Rake out joints as follows, according to procedures demonstrated in approved mockup:
  - 1. Remove mortar from joints to depth of 2 times joint width, but not less than 1/2 inch (13 mm) or not less than that required to expose sound, un-weathered mortar.
  - 2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
  - 3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Architect.
    - a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders without Architect's written approval based on approved quality-control program.
    - b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.
- D. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.
- E. Pointing with Mortar:
  - 1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
  - 2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch (9 mm) until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
  - 3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch (9 mm). Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to feather edge the mortar.



4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
  5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours including weekends and holidays.
    - a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
    - b. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.
  6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.
- F. Pointing with Sealant:
1. After raking out, keep joints dry and free of mortar and debris.
  2. Clean and prepare joint surfaces according to Section 079200 "Joint Sealants." Prime joint surfaces unless sealant manufacturer recommends against priming. Do not allow primer to spill or migrate onto adjoining surfaces.
  3. Fill sealant joints with specified joint sealant according to Section 079200 "Joint Sealants" and the following:
    - a. Install cylindrical sealant backing beneath the sealant, except where space is insufficient. There, install bond-breaker tape.
    - b. Install sealant using only proven installation techniques that will ensure that sealant will be deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding masonry and matching the contour of adjoining mortar joints.
    - c. Install sealant as recommended by sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:
    - d. Fill joints to a depth equal to joint width, but not more than 1/2 inch (13 mm) deep or less than 1/4 inch (6 mm) deep.
    - e. Immediately after first tooling, apply ground-mortar aggregate to sealant, gently pushing aggregate into the surface of sealant. Retool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant and aggregate from surfaces adjacent to joint.
    - f. Do not allow sealant to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces, particularly rough textures. Remove excess and spillage of sealant promptly as the work progresses. Clean adjoining surfaces by the means necessary to eliminate evidence of spillage, without damage to adjoining surfaces or finishes, as demonstrated in an approved mockup.
  4. Cure sealant according to Section 079200 "Joint Sealants."
- G. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

### 3.12 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.
1. Do not use metal scrapers or brushes.
  2. Do not use acidic or alkaline cleaners.



- B. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.
- C. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash pavement surfaces to remove mortar, dust, dirt, and stains.

**END OF SECTION**



## PART 1 GENERAL

### 1.01 RELATED SECTIONS

- A. Drawings and general provisions of the Agreement, including General and Supplementary Conditions, and Division 01 of the Project Manual, apply to work of this Section.

### 1.02 SUMMARY

- A. This Section includes mortar for all concrete unit masonry, ACMU masonry, brick masonry, glass unit masonry, cast stone, precast concrete units, and adhered masonry units.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Section 040523 - Masonry Accessories
  - 2. Section 042200 - Concrete Unit Masonry

### 1.03 STANDARDS

- A. All work of this section shall conform to industry standards and/or manufacturer's recommendation.
- B. ASTM C91 "Standard Specifications for Masonry Cement".
- C. ASTM C109 "Standard Test Method for Compressive Strength of Hydraulic Cement Mortars".
- D. ASTM C144 "Standard Specification for Aggregate for Masonry Mortar".
- E. ASTM C150 "Standard Specification for Portland Cement".
- F. ASTM C207 "Standard Specifications for Hydrated Lime for Masonry Purposes".
- G. ASTM C270 "Standard Specifications for Mortar for Unit Masonry".
- H. ASTM C780 "Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry".
- I. ASTM C979 "Standard Specification for Pigments for Integrally Colored Concrete".
- J. ASTM C1506 "Standard Test method for Water Retention of Hydraulic Cement-Based Mortars and Plasters".

### 1.04 SUBMITTALS

- A. Submit pursuant to Section 013300 - Submittal Procedures.
- B. Submit pursuant to Section 016000 - Product Requirements.
- C. Submit certificates of compliance and manufacturer's technical data describing: cement, lime, sand and admixture products specified.
- D. Submit manufacturer's technical data describing integral coloring specified.



- E. Submit small mortar samples depicting integral coloring. Provide manufacturer's entire range of available colors. Plastic samples representing available colors are not acceptable.
- F. Mortar mix designs for each type of mortar. Include description of type and proportions of ingredients.
  - 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109 for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
- G. Submit results of tests of field specimens.

#### 1.05 QUALITY ASSURANCE

- A. All work of this section shall be performed by experienced workers familiar with the work and according to manufacturer's recommendations and/or industry standards.

#### 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Pursuant to manufacturer's published instructions.
- B. Protect against moisture exposure and damage.

### PART 2 PRODUCTS

#### 2.01 MORTAR MATERIALS

- A. Portland Cement: ASTM C150, Type I or Type II.
  - 1. Provide white cement for integral coloring where required to obtain desired mortar color.
- B. Sand: ASTM C144; local mason sand.
- C. Water: Clean, potable and salt free.
- D. Lime: ASTM C207, Type S mortar.
- E. Provide all cement products from one manufacturer.

#### 2.02 ADMIXTURES

- A. Admixtures containing calcium chlorides are prohibited.
- B. All mortar for exterior concrete masonry applications shall contain an integral water-repellent admixture such as:
  - 1. BLOCKTITE Mortar Admixture by Euclid Chemical Company.
  - 2. DRY-BLOCK® System by GCP Applied Technologies, Inc.
  - 3. MasterPel® 210E by Master® Builders Solutions.
- C. Mortar water-repellent admixture shall be same water-repellent admixture used in the manufacture of the concrete masonry units.
- D. Apply at dosage recommended by the manufacturer.



- E. Do not use integral water repellent mortar admixture with clay masonry applications.

## 2.03 INTEGRAL COLORING

- A. Product: dry mixture of pure, non-fading, alkali-resistant iron-oxide pigments possessing uniform dispersion characteristics specifically intended for mixing into mortar and complying with ASTM C979.
- B. Color selection by Architect.

## 2.04 MORTAR MIX

- A. Prepare mortar mixes pursuant to "Property Specification Requirements" of ASTM C270 for types indicated on Drawings and herein specified. Do not exceed manufacturer's recommended pigment to cement ratio in colored mortar.
- B. Exterior Concrete Unit Masonry (above grade)
  - 1. Mortar:
    - a. Type S (minimum average compressive strength at 28 days: 1,800 lb./sq. in.).
    - b. Mix: Portland cement/lime/sand.
  - 2. Admixture:
    - a. Coloring pigments, color as selected by Architect.
    - b. Must contain admixture for waterproofing
      - 1) Submittals must specify water repellent agent.
      - 2) Submit product literature for approval prior to using mortar on any finished area.
- C. Exterior Brick Masonry (above grade)
  - 1. Mortar:
    - a. Type N
      - 1) Proportion Portland cement, Lime and Sand in a 1:1:6 ratio
  - 2. Admixture:
    - a. Coloring pigments, color as selected by Architect.
    - b. Submit product literature for approval prior to using mortar on any finished area
- D. Interior Concrete Unit Masonry
  - 1. Mortar:
    - a. Type S (minimum average compressive strength at 28 days: 1,800 lb./sq. in.).
    - b. Mix: Portland cement/lime/sand.
    - c. Color: Standard gray
      - 1) Standard gray at CMU to be painted.
      - 2) Integral coloring at interior ground face ACMU. Mortar color as selected by Architect.
- E. Tests
  - 1. Prepare mix designs and conduct tests using a recognized laboratory.



## PART 3 EXECUTION

### 3.01 MIXING

- A. Mix mortar by methods that will ensure accurate proportioning of all required ingredients to a uniform consistency.
- B. Mechanically mix between 3 to 5 min. Hand mixing is prohibited.
- C. Select ingredients that are compatible.
- D. Do not combine two air entraining materials within same mortar mix.

### 3.02 RETEMPERING

- A. Use mortar within 2-1/2 hours of initial mixing.
- B. Discard unused mortar after it has begun to set. Do not re-temper mortar that has begun to set.

### 3.03 ADMIXTURES

- A. Mix admixtures into mortar pursuant to manufacturer's published instructions.

### 3.04 INTEGRAL COLORING

- A. Provide integral coloring to mortar for all exterior walls and interior ACMU walls if any.
- B. Mix into mortar pursuant to manufacturer's published instructions.

### 3.05 FIELD QUALITY CONTROL

- A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare reports. Allow inspectors access to scaffolding and work area, as needed to perform inspections.
- B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests, inspections and prepare test reports:
  - 1. Payment for these services will be made by Owner.
- C. Mortar Tests: Test each type of mortar in accordance with ASTM 780, testing with same frequency as masonry samples.
  - 1. Test three samples for each 5,000 square feet of wall area or portion thereof; test one sample at 7 days and two samples at 28 days for each set.

## END OF SECTION



## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Agreement, including General and Supplementary Conditions, and Division 01 of the Specifications, apply to work of this Section.

### 1.02 SUMMARY

- A. This Section includes the following masonry related items:
  - 1. Metal horizontal joint reinforcement for masonry.
  - 2. Wall ventilation for masonry.
  - 3. Masonry veneer anchors.
  - 4. In wall cavity mortar netting with insect barrier.
  - 5. Thru wall flashing.
  - 6. Masonry Control Joints.
  - 7. Masonry Partition Anchors and Z Ties.
  - 8. Grout Screen.
  - 9. Masonry anchorage to steel columns and beams.
  - 10. Brick Vents
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Section 040513 - Mortar.
  - 2. Section 042200 - Concrete Unit Masonry

### 1.03 STANDARDS

- A. All work of this section shall conform to industry standards and/or manufacturer's recommendations.
- B. ASTM A82 "Standard Specification for Steel Wire, Plain, for Concrete Reinforcement".
- C. ASTM A153 "Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware".
- D. ASTM A641 "Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire".
- E. ASTM A951 "Standard Specification for Masonry Joint Reinforcing".
- F. ASTM D2287 "Standard Specification for Non-rigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds".
- G. "Building Code Requirements and Specification for masonry Structures" and Companion Commentaries (latest edition) (ACI-530/530.1; ASCE-5; TMS-402/602).

### 1.04 SUBMITTALS

- A. Submit pursuant to 013300 - Submittal Procedures.
- B. Submit pursuant to 016100 - Product Requirements.
- C. LEED Submittals:
  - 1. Credit MR 4.1 and MR 4.2: Provide documentation indicating how the requirements of Credit MR 4.1 [and 4.2] will be met.



- a. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
  - b. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
- 2. Credit MR 5.1: Provide product data indicating location of material manufacturer for regionally manufactured materials.
  - a. Include statement indicating cost and distance from manufacturer to Project for each regionally manufactured material.
  - b. Include a statement indicating cost and distance from point of extraction, harvest, or recovery to Project for each raw material used in regionally manufactured materials.
- D. Submit certificates of compliance and manufacturer's technical data for but not limited to: horizontal joint reinforcing, movement joints products, anchors, thru-wall flashing, mortar netting, wall ventilation and rigid ties.

#### 1.05 QUALITY ASSURANCE

- A. All work of this section shall be performed by experienced workers familiar with the work and according to manufacturer's recommendations and/or industry standards.

#### 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Pursuant to manufacturer's published instructions.
- B. Protect against moisture exposure and damage.

### PART 2 PRODUCTS

#### 2.01 HORIZONTAL JOINT REINFORCEMENT WITH TIES OR ANCHORS

- A. Description: two or more parallel longitudinal deformed rods weld connected with transverse cross rods which forms a ladder design.
- B. Provide with out-to-out longitudinal rod spacing two inches less than out-to-out of CMU wythe width.
- C. Exterior Application:
  - 1. Side Rods: Two rods, 3/16-inch diameter.
  - 2. Cross Rods: 9 gauge.
  - 3. Finish: hot dip galvanized 1.5 oz. per sq. ft., ASTM A153, Class B-2.
  - 4. Pintle: super-heavy-duty eyelets, pintles are flattened and serrated.
    - a. Embed pintles (hooks) in the mortar joint and extend into the veneer a minimum of 1 1/2", with at least 5/8" mortar cover to the outside face.
- D. Products: #270 ML Adjustable Eye-Wire by Hohmann & Barnard, Inc., ([www.h-b.com](http://www.h-b.com)) or Architect approved equivalent.

#### 2.02 HORIZONTAL JOINT REINFORCEMENT WITHOUT TIES OR ANCHORS

- A. Description: two or more parallel longitudinal deformed rods weld connected to a continuous diagonally oriented cross rod which forms a "ladder" design.



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- B. Provide with out-to-out side rod spacing two in. less than out-to-out total wall system width.
  - 1. Lap side rods minimum of 6" at splices u.o.n.
- C. Exterior Application:
  - 1. Side Rods: 2 min., 3/16-inch diameter.
  - 2. Cross Rods: 9 gauge.
  - 3. Finish: hot dip galvanized 1.5 oz. Per sq. ft., ASTM A153, Class B-2.
- D. Interior Application:
  - 1. Side Rods: 2 min., 3/16-inch diameter.
  - 2. Cross Rods: 9 gauge.
  - 3. Finish: mill galvanized minimum of .10 oz. psf.
- E. Products: #220 Ladder Mesh by Hohmann & Barnard, Inc. ([www.h-b.com](http://www.h-b.com)), or Architect approved equivalent.

### 2.03 HORIZONTAL JOINT REINFORCEMENT WITH TIES OR ANCHORS FOR RUBBLE STONE MASONRY

- A. Description: two or more parallel longitudinal deformed rods weld connected with transverse cross rods which forms a ladder design.
- B. Provide without-to-out longitudinal rod spacing two in. less than out-to-out of cmu wythe width.
  - 1. Lap side rods minimum of 6" at splices u.o.n.
- C. Exterior Application:
  - 1. Side Rods: Two rods, 3/16-inch diameter.
  - 2. Cross Rods: 9 gauge.
  - 3. Vertical Hook: 3/8" diameter
  - 4. V-Ties: 3/16" diameter.
  - 5. Finish: hot dip galvanized 1.5 oz. Per sq. ft., ASTM A153, Class B-2.
- D. Products: TIE-HVR-295V Anchor System by Hohmann & Barnard, Inc. ([www.h-b.com](http://www.h-b.com)), or Architect approved equivalent.

### 2.04 RUBBLE STONE VENEER ANCHORING SYSTEM (TO OTHER THAN NEW CMU BACK UP WALL)

- A. Description: vertically adjustable mechanical anchoring system for rubble stone veneer to wood or metal stud construction or to existing concrete masonry construction.
- B. Provide L-shaped bracket with vertical hook and wire ties as manufactured by Hohmann & Barnard, Inc. or approved equivalent.
- C. Exterior Application:
  - 1. L-Shaped Bracket: 12-gauge x 2 5/8" wide.
  - 2. Vertical Hook: 3/8" diameter
  - 3. V-Ties: 3/16" diameter.
  - 4. Finish: hot dip galvanized 1.5 oz. Per sq. ft., ASTM A153, Class B-2.
- D. Install at wall studs through exterior insulation board.



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1. Space mechanical ties at 24" o.c. horizontally and 16" o.c. vertically when wall studs are 24" o.c.,
2. Space mechanical ties at 16" o.c. horizontally and 16" ± o.c. vertically when wall studs are 16" o.c.
3. Space mechanical ties at 12" o.c. horizontally and 16"± o.c. vertically when wall studs are 12" o.c.

- E. Product: TIE-HVR-195VB Anchor System for Rubble Stone by Hohmann & Barnard, Inc. ([www.h-b.com](http://www.h-b.com)) or Architect approved equivalent.

## 2.05 VENEER ANCHORING SYSTEM (HB-213)

- A. Description: vertically adjustable mechanical anchoring system for anchoring masonry veneer to metal stud wall construction.
- B. Provide 14-gauge HB-213 with 3/16-inch diameter 2X-Hook as manufactured by Hohmann & Barnard, Inc. or Architect approved equivalent.
1. Embed 2X-Hook in the veneer mortar joint a minimum of 2", with at least 5/8" mortar cover to the outside face.
- C. Install at wall studs through exterior gypsum wall board.
1. Space mechanical ties at 24" o.c. horizontally and 16" o.c. vertically when wall studs are 24" o.c.
  2. Space mechanical ties at 16" o.c. horizontally and 24" o.c. vertically when wall studs are 16" o.c.
  3. At openings in veneer (windows, doors, louvers, etc.) that exceed 16" in any direction, place additional mechanical ties around the perimeter of the opening at 36" o.c. maximum and shall be placed within 12" of the perimeter of the opening.
- D. Finish: hot dip galvanized.

## 2.06 VENEER ANCHORING SYSTEM (THROUGH INSULATION TO CMU OR CONCRETE WALLS)

- A. Description: Single screw veneer tie anchoring system for masonry veneer to concrete masonry or concrete construction with plastic wing nut.
- B. Provide: 3/16" diam. compressed leg 2X-Hook veneer anchor, ASTM A82/A82M (70 ksi. yield strength), hot dip galvanized.
1. Embed pintles (hooks) in the mortar joint and extend into the veneer a minimum of 1-1/2", with at least 5/8" mortar cover to the outside face.
- C. Install directly to CMU and concrete walls.
1. At CMU walls space mechanical ties at 12" o.c. vertically (with 12" tall veneer) and 16" o.c. horizontally.
  2. At concrete walls, space mechanical ties at 12" o.c. vertically (with 12" tall veneer) and 20" o.c. horizontally.
  3. Install at 12" o.c. ea. way within 8" around perimeter of openings in veneer that exceed 16" in any direction.
  4. Predrill CMU and concrete to accept screw.
- D. Finish: type 304 stainless steel with polymer coated screw.



- E. Product: 2-Seal Thermal Concrete Wing Nut Anchor with 2X-Hook by Hohmann & Barnard, Inc. ([www.h-b.com](http://www.h-b.com)) or Architect approved equivalent.

## 2.07 MASONRY VENEER ANCHORING SYSTEM TO EXISTING BUILDING CMU

- A. Description: Masonry Fastener assembly for refacing a masonry veneer to existing masonry construction with a minimum 3/4" cavity.
- B. Product: #BL-5407 Repair and Restoration Anchors by Hohmann & Barnard, Inc.
  - 1. Finish: Hot-dip galvanized.
  - 2. Base Plate: 16-gauge
  - 3. Wire tie: 3/16" diameter.
- C. Fastener: BL-523 Brass Expansion Bolt.
- D. Spacing:
  - 1. 16" horizontally and 16" vertically, unless noted otherwise.
  - 2. Provide additional anchors within 8" horizontally of any opening or outside corner and space anchors that are within 8" of any opening or corner at 8" o.c. vertically.
  - 3. Provide additional anchors located within 4" of the top of the veneer, 16" o.c. horizontally.

## 2.08 MASONRY ANCHORING SYSTEM (MASONRY ANCHORED TO STRUCTURAL STEEL)

- A. Description: vertically adjustable mechanical anchoring system for masonry to steel construction. All columns that face and are adjacent (within 2 inches) to masonry shall have masonry anchors on those sides for full height of masonry. All steel beams that face masonry shall have masonry anchors on the web of the beam facing the masonry for the full length of the beam.
- B. For vertical applications (faces of columns): Provide #317 (1/4-inch diameter) continuous wire rod anchor welded to steel members. Use #316's when CMU is parallel with steel. Use #318 triangular ties when CMU is perpendicular to steel. All as manufactured by Heckmann Building Products, Inc. or approved equivalent. Where face of columns are covered by insulation, use Hohmann & Barnard HB-213-2x (12 ga. backplate) adjustable veneer anchors welded or mechanically fastened to steel columns.
- C. For horizontal applications (webs of beams): Provide #315 (1/4-inch diameter) wire rod anchors welded to steel members. The veneer ties are to be a triangular wire, 3/16-inch diameter. Use #316's when CMU is parallel with steel. Use #318 triangular ties when CMU is perpendicular to steel. All as manufactured by Heckmann Building Products, Inc. or approved equivalent.
- D. Install as indicated on the drawings. When not indicated space triangular ties at 16 inches on center for vertical applications and space anchors and triangular ties at 16 inches on center for horizontal applications.
- E. Finish: #315's and #317's furnish plain or galvanized, painted with steel in shop. #316's and #318's hot dip galvanized 1.5 oz. per sq. ft. ASTM A153, Class B-2.

## 2.09 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60.



## 2.10 MOVEMENT JOINT PRODUCTS

- A. Hohmann & Barnard or approved equivalent
  - 1. Control joint - RS Series Rubber Control Joint
    - a. Preformed Control Joint Gaskets: Rubber - ASTM D2000
    - b. Designed to fit standard sash block and to maintain lateral stability
    - c. Install in as continuous piece vertically as possible.
  - 2. Joint Stabilization Anchors
    - a. Slip-Set Stabilizer
    - b. Finish: hot dip galvanized.
    - c. Install at masonry vertical control joints at 2'-0" o.c. vertically.
  - 3. Veneer Control Joint-NS Closed Cell Neoprene Sponge with Slip-Set Stabilizers at 2'-0" o.c. vertically.

## 2.11 GROUT SCREEN

- A. Hohmann & Barnard or approved equivalent
  - 1. MGS Mortar/Grout Screen based on CMU thickness.
  - 2. Use where required to maintain grout in filled cells.

## 2.12 THROUGH-WALL FLASHING (BASE FLASHING, THRU-WALL FLASHING)

- A. Perm-A-Barrier by GCP Applied Technologies, Inc. or Architect approved equivalent, field adhered to a 26-gauge stainless steel drip edge, 2" wide with a 3/16" hemmed drip. Secured at the top by a 1/8" x 1", 304 stainless steel termination bar in 12' lengths, fastened at each stud in all stud-wall back-up situations. Fasten termination bar at 12" o.c. at CMU back-up walls. The flexible flashing material is to be a minimum of 8 mil, high density, cross laminated polyethylene film integrally bonded to 32 mils of rubberized asphalt.
  - 1. Install in accordance with manufacturer's printed instructions at all exterior conditions.
  - 2. Mortar shall be bedded above and below the flashing.
  - 3. Flash all shelf angles including but not limited to lintels, bond beams, sills, wall bases and any other obstructions to natural flow of water within the wall cavity.
  - 4. Install end dams a minimum of 1" high at all shelf angles, sills and other ends.
  - 5. Lap all joints a minimum of 6" and seal with manufacturers approved mastic.
  - 6. Cut, form and seal all inside and outside corners.
  - 7. Any penetration of the flashing must be sealed.
  - 8. All thru wall flashings to rise a minimum of 8" to the interiors. Use termination bar and caulk at exterior sheathing and CMU.

## 2.13 WALL DRAINAGE AND VENTILATION

- A. Description: cell ventilation and weep unit.
  - 1. Provide "Quadro Vent™" as manufactured by Hohmann & Barnard, Inc. or approved equivalent.
  - 2. Install directly on top of through wall flashings and at highest point in cavity at 24" o.c. in brick veneer conditions and 32" o.c. in cast stone and ACMU veneer.
  - 3. Color: to be selected by Architect.
  - 4. If cell vent appears in profiled unit (Bullnose, chamfered, etc.) trim cell vent to profile shape.



#### 2.14 IN WALL CAVITY MORTAR NETTING

- A. Description: 90% open polymeric mesh with insect barrier to allow unobstructed passage of air and water as base of wall cavity.
- B. Product: Mortar Net® with Insect Barrier, by Mortar Net Solutions™, 10" high by thickness required.
- C. Match product size to cavity size. Cavity should be no more than ¼" wider than 1" thick material and 2" thick material, and 0.4" thick material should touch both the outer wythe and the inner wall. For cavities larger than 2", place rigid insulation of sufficient height to extend at least 6" above the top of the Mortar Net® with Insect Barrier against the outside of the inner wythe and of appropriate thickness to reduce the cavity to the appropriate size or add additional layers of Mortar Net® to fill width of cavity.

#### 2.15 EXPANSION BOLTS (ATTACHING STEEL MEMBERS TO MASONRY WALLS)

- A. Description: Stud type with a single piece three section wedge and zinc plated in accordance with ASTM B633 or where specified, type 304 or type 316 stainless steel. See Contract Drawings for locations where stainless steel is required. Anchors shall be installed in drilled holes per manufacturer's recommendations.
- B. Product: Hilti Kwik Bolts, diameter as specified, by Hilti Corp. or Architect approved equivalent.

#### 2.16 ADHESIVE ANCHOR BOLTS (ATTACHING STEEL MEMBERS TO MASONRY ELEMENTS)

- A. Description: Threaded anchor rods, nut and washer, a cylindrical mesh screen tube and an injectable adhesive (components A and B) material. Screen tube and anchors shall be installed in drilled holes and per manufacturer's recommendations. Anchor rods supplied in accordance with ASTM A 36, or if required: ASTM F 593 (AISI 304 stainless steel). Nuts shall be furnished to meet the requirements of the above anchor rod specifications. Anchors rods (non-stainless steel), nuts and washers to be zinc plated in accordance with ASTM A 153.
- B. Product: Hilti HIT-HY 10 PLUS, diameter as specified, by Hilti Corp. or Architect approved equivalent.

#### 2.17 RIGID TIES (ATTACHING INTERSECTING MASONRY WALLS TOGETHER WHEN TOOTHING IS UNATTAINABLE)

- A. Description: Mild steel "Z" ties, 1/4" thick, 1 1/2" wide x 24" long, with 2" long bent legs, hot dip galvanized. Install at 16" o.c. vertically into fully grouted cores. Adjust overall length when field conditions do not permit use of 24" length. Use longest possible length that permits bent legs to fall in grouted cores.
- B. Product: Rigid Partition Anchor Type #344 by Hohmann & Barnard, Inc. or Bent Anchor Type 140 by Heckmann Building Products, Inc. or Architect approved equivalent.

#### 2.18 PARTITION TOP ANCHOR

- A. Description: Mild steel, 12 gauge, 8" long with 2" long bent legs, hot dip galvanized. Install at 24" o.c. horizontally. Provide NS-Neoprene sponge in gap between top of CMU and bottom of anchor.



- B. Product: PTA Type #422 by Hohmann & Barnard, Inc. or Architect approved equivalent.

## 2.19 CAST ALUMINUM BRICK VENT

- A. BVC100 Cast Aluminum Brick Vent as manufactured by Ruskin®, 3900 Dr. Greaves Rd., Kansas City, MO 64030, Phone (816) 761-7476 or Architect approved equivalent.
1. Material: Cast Aluminum.
  2. Wall Thickness: #356 Aluminum Casting.
  3. Frame Construction: 4" Frame Depth.
  4. Frame Size: As shown on Contract Drawings.
  5. Blades:
    - a. Style: Straight
    - b. Material: Formed Aluminum
    - c. Thickness: 0.100 inch, Nominal
    - d. Angle: 45 Degrees
  6. Insect Screen: 7 x 7 Aluminum Mesh
  7. Finishes: 70 percent Fluoropolymer - Based Painted Finish, AAMA 2605, Standard 2 Coat, Standard 15 Color Choices. Provide asphaltum paint on surfaces built into masonry.

## PART 3 EXECUTION

### 3.01 GENERAL

- A. If more than one value or requirement is specified, see Drawings for location.

### 3.02 HORIZONTAL JOINT REINFORCEMENT

- A. Place horizontal joint reinforcing as follows:
1. In solid wall panels, for interior and exterior walls, place at a vertical spacing of 16 in. on center vertically.
  2. In exterior parapets, place at a vertical spacing of 8 in. on center vertically.
- B. Place horizontal joint reinforcement in
1. All concrete unit masonry walls.
- C. Place reinforcing in the two (2) bed joints above and below window, louver and door wall openings, extending a minimum of 24" beyond the opening (except at vertical control joints). At other special conditions, place horizontal joint reinforcement as described in manufacturer's published instructions and as illustrated on Drawings.
- D. Lap side rods at each end joint a minimum of 6 in. for normal shrinkage stresses.
- E. Install prefabricated corner and tee assemblies at each wall corner and intersection.
- F. Miter and butt end joints are prohibited.
- G. Place horizontal joint reinforcement in approximate center of out-to-out wall assembly and assuring a 5/8 in., minimum, mortar coverage on exterior face.
- H. Install horizontal joint reinforcement continuous, terminating only at vertical control joints.



### 3.03 REINFORCED VERTICAL CELLS (VERTICAL REINFORCEMENT)

- A. Place vertical reinforcement in concrete masonry cells as indicated on Drawings using wire-tying or prefabricated bar positioners. Wet-setting reinforcement is not permitted. Comply with requirements in ACI 530.1/ASCE 6/TMS 402/602.
- B. Fill concrete masonry cells with fine or coarse gravel concrete grout (not mortar) as described in Section 042200 "CONCRETE UNIT MASONRY". Grout is specified in Section 036000 "GROUTING".
- C. Place, tie, secure and lap reinforcement pursuant to Section 042200. Vertical bars must be placed within 1/2 inches of the location required within the thickness (out of plane) of the wall. For 12" CMU walls or pilaster, this tolerance can be increased to 3/4 inch.
- D. Reinforcement Bars shall be lapped at splices as follows:

Bar Size	Min. Lap Distance
#4	24 inches
#5	30 inches
#6	36 inches
#7	42 inches

### 3.04 BENDING, CUTTING AND SPLICING REINFORCEMENT

- A. Make bends and splices in reinforcement only where indicated, or prior-approved by Architect. Bend reinforcement only when cold, and prior to any placement in construction, forming around a steel pin of diameter at least 6 times the reinforcement size. Cut bars only by approved sawing, shearing or welding methods. Make ends of reinforcement straight, square, clean and free of defects before splicing. Do not heat or weld bends and splices at points of maximum stress. Clip and bend any tie wires as required to direct the ends away from external surfaces of masonry walls.
- B. Where welding is necessary, provide materials and perform welding in accordance with AWS requirements.

### 3.05 MORTAR NET

- A. Install as per manufacturer's instructions.
- B. Install continuous length of mortar net immediately above all through-wall flashings in masonry veneer applications.

### 3.06 EXPANSION/CONTROL JOINTS IN MASONRY VENEER

- A. Install Joint Stabilization Anchors at 2'-0" o.c. vertically in veneer expansion/control joints. Field bend joint stabilization anchors where CJ/EJs occur at perpendicular veneer. Provide NSTA - Closed Cell Neoprene Sponge in veneer control joints.

**END OF SECTION**



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## 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. Concrete masonry units.
  - 2. Architectural concrete masonry units.
  - 3. Masonry Lintels.
  - 4. Mortar and grout.
  - 5. Steel reinforcing bars.
  - 6. Masonry joint reinforcement.
  - 7. Ties and anchors.
  - 8. Miscellaneous masonry accessories.
  - 9. Installation of Door Frames, Lintels and items furnished by other sections.
  - 10. Cleaning of masonry.

### 1.03 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

### 1.04 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
  - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
  - 2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C1314.
- B. Fire Rated Assemblies: Tested in accordance with ANSI/UL 263 "Fire Tests of Building Construction and Materials" conforming to UL Assembly No. U906.

### 1.05 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Owner will engage a qualified independent testing agency to perform preconstruction testing indicated below. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
  - 1. Concrete Masonry Unit Test: For each type of unit required, according to ASTM C140/C140M for compressive strength.
  - 2. Mortar Test (Property Specification): For each mix required, according to ASTM C109/C109M for compressive strength, ASTM C 1506 for water retention, and ASTM C91/C91M for air content.
  - 3. Mortar Test (Property Specification): For each mix required, according to ASTM C780 for compressive strength.
  - 4. Grout Test (Compressive Strength): For each mix required, according to ASTM C1019.



5. Prism Test: For each type of construction required, according to ASTM C1314.

#### 1.06 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
  1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
  2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
- C. Samples for Initial Selection:
  1. Architectural CMUs, in the form of small-scale units.
  2. Colored mortar.
  3. Weep holes/vents.
- D. Samples for Verification: For each type and color of the following:
  1. Exposed CMUs.
  2. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project.
  3. Accessories embedded in masonry.

#### 1.07 INFORMATIONAL SUBMITTALS

- A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
  1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.
- B. Qualification Data: For testing agency.
- C. Material Certificates: For each type and size of the following:
  1. Masonry units.
    - a. Include data on material properties material test reports substantiating compliance with requirements.
    - b. For masonry units, include data and calculations establishing average net-area compressive strength of units.
  2. Cementitious materials. Include brand, type, and name of manufacturer.
  3. Pre-blended, dry mortar mixes. Include description of type and proportions of ingredients.
  4. Grout mixes. Include description of type and proportions of ingredients.
  5. Reinforcing bars.
  6. Joint reinforcement.
  7. Anchors, ties, and metal accessories.
- D. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.



1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109/C109M for compressive strength, ASTM C 1506 for water retention, and ASTM C91/C91M for air content.
  2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.
- E. 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 402/602.
- F. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

#### 1.08 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C1093 for testing indicated.
- B. Special Testing Inspections: Owner shall employ a Special Inspection Agency to provide required inspections in accordance with current [ ] Section 1704.5 and 1704.5.1 (Level 1).
- C. 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.
- D. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.
- E. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 402/602 unless modified by requirements in the Contract Documents.
- F. Mock-up Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014500 - QUALITY CONTROL for mockups.
1. Build sample panels for typical exterior wall in sizes approximately 72 inches long by 48 inches high by full thickness.
  2. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
  3. Protect approved sample panels from the elements with weather-resistant membrane.
  4. Approval of sample mock-up panel is for the following items:
    - a. Color, texture, and blending of masonry units;
    - b. Relationship of mortar and sealant colors to masonry unit colors;
    - c. Tooling of joints;
    - d. Aesthetic qualities of workmanship;
    - e. Reinforcing, flashing, control joint and sealant installations;
    - f. Other material and construction qualities specifically requested by Architect in writing.
  5. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by Architect in writing.



#### 1.09 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. Deliver pre-blended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

#### 1.10 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.
- 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/ACI 530/530.1/ERTA.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 402/602.



## 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 E119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

### 2.02 CONCRETE MASONRY UNITS

- A. Regional Materials: CMUs shall be manufactured within 500 miles of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of the Project site.
- B. 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.
- C. Integral Water Repellent: Provide units made with integral water repellent for exposed units and where indicated.
  - 1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E 514 as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.
    - a. Products : Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) ACM Chemistries, Inc.; RainBloc.
      - 2) BASF Group; MasterPel 240
      - 3) Grace Construction Products, W. R. Grace & Co.; Dry-Block.
- D. CMUs: ASTM C90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi(19.3 MPa).
  - 2. Density Classification: Normal weight.
  - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
  - 4. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
  - 5. Faces to Receive Plaster: Where units are indicated to receive a direct application of plaster, provide textured-face units made with gap-graded aggregates.
- E. Architectural CMUs: ASTM C90.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Barrasso & Sons, Inc.



- b. A. Jandris & Sons, Inc.
  - c. Palumbo Block Co., Inc.
  - d. Or approved equal.
2. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi.
3. Density Classification: Normal weight.
4. Size (Width): Manufactured to dimensions specified in "CMUs" Paragraph.
5. Pattern and Texture:
  - a. Standard pattern, Ground-face finish.
  - b. Standard Pattern, Polished finish.
  - c. Standard Pattern, Weathered Polished finish.
  - d. Standard pattern, split-face finish.
6. Colors: As selected by Architect from manufacturer's full range.
7. Special Aggregate: Provide units made with aggregate matching aggregate in Architect's sample.

## 2.03 MASONRY LINTELS

- A. General:
  1. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.
  2. Steel Lintels: Install multiple Steel angle lintels as indicated on the drawings. Provide Hot-dip galvanized lintels for exterior installations.

## 2.04 MORTAR AND GROUT MATERIALS

- A. Regional Materials: Aggregate for mortar and grout, cement, and lime shall be extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.
- B. Portland Cement: ASTM C150/C150M, 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.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.
- E. Masonry Cement: ASTM C91/C91M.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Essroc, Italcementi Group; Brixment or Velvet.
    - b. Holcim (US) Inc; Mortamix Masonry Cement.
    - c. Lafarge North America Inc.; Magnolia Masonry Cement.
    - d. Lehigh Cement Company; Lehigh Masonry Cement.
- F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:



- a. Davis Colors; True Tone Mortar Colors.
  - b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
  - c. Solomon Colors, Inc.; SGS Mortar Colors.
- G. Colored Cement Product: Packaged blend made from Portland cement and hydrated lime or mortar cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.
- H. Aggregate for Mortar: ASTM C144.
  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.
- I. Grout: ASTM C476. 2,000 psi minimum
  1. Fine aggregate: sand.
  2. Coarse aggregate: 3/8" chip gravel
- J. Aggregate for Grout: ASTM C404.
- K. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Euclid Chemical Company (The); Accelguard 80.
    - b. Grace Construction Products, W. R. Grace & Co.; Morset.
    - c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.
- L. 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, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. ACM Chemistries, Inc.; RainBloc for Mortar.
    - b. BASF Aktiengesellschaft; MasterPel 240MA Mortar Admixture.
    - c. Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.

M. Water: Potable.

## 2.05 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60 (Grade 420).
- B. Epoxy coated reinforcement shall conform to ASTM A775/A775M.
- C. Masonry Joint Reinforcement, General: ASTM A951/A951M.
  1. Interior Walls: Mill- galvanized, carbon steel.



2. Exterior Walls: Hot-dip galvanized, carbon steel.
  3. Wire Size for Side Rods: 0.187-inch diameter.
  4. Wire Size for Cross Rods: 0.148-inch diameter.
  5. Wire Size for Veneer Ties: 0.187-inch diameter.
  6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
  7. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.
- D. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

## 2.06 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A153/A153M, Class B-2 coating.
  2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A153/A153M, Class B coating.
  3. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch diameter, hot-dip galvanized steel wire.
  2. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch (25 mm) of masonry face, made from 0.187-inch diameter, hot-dip galvanized steel wire.
- C. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.060-inch thick, steel sheet, galvanized after fabrication  
01.05-inch thick, steel sheet, galvanized after fabrication.
    - a. 0.108-inch thick, galvanized sheet may be used at interior walls unless otherwise indicated.
  2. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.25-inch diameter, hot-dip galvanized steel wire.
  3. Corrugated Metal Ties: Metal strips not less than 7/8 inch wide with corrugations having a wavelength of 0.3 to 0.5 inch and an amplitude of 0.06 to 0.10 inch made from 01.05-inch thick, steel sheet, galvanized after fabrication with dovetail tabs for inserting into dovetail slots in concrete and sized to extend to within 1 inch of masonry face.
- D. Partition Top anchors:
1. PTA type, Model 420 by Hohmann & Barnard, Inc. or approved equal, 0.105-inch thick metal plate with 3/8-inch diameter metal rod 6 inches long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube.
  2. PTA type, Model 422, by Hohmann & Barnard or approved equal, 12 gauge thick with 7/16 inch holes. Fabricate from steel, Hot-dip galvanized after fabrication. Use in conjunction with NS Neoprene Sponge to allow for vertical expansion and contraction.



- E. Rigid Anchors for intersecting walls: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins unless otherwise indicated.
  - 1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A153/A153M.

## 2.07 MISCELLANEOUS ANCHORS

- A. Unit Type Inserts in Concrete: Cast-iron or malleable-iron wedge-type inserts.
- B. Dovetail Slots in Concrete: Furnish dovetail slots with filler strips, of slot size indicated, fabricated from 0.034-inch, galvanized steel sheet.
- C. Anchor Bolts: L-shaped steel bolts complying with ASTM A307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A153/A153M, Class C; of dimensions indicated.
- D. Post-installed Anchors: chemical anchors.
  - 1. Load Capacity: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488/E488M, conducted by a qualified independent testing agency.
  - 2. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn 5 unless otherwise indicated.
  - 3. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 A1 stainless-steel bolts, ASTM F593, and nuts, ASTM F594.

## 2.08 WEEP VENTS

- A. Manufacturer and Type: CavClear Weep Vents as manufactured by Archovations, Inc., 701 Second Street, Hudson, WI 54016, (715) 381-5773 or approved equal.
  - 1. Description: Non-woven mesh with notched bottom.
  - 2. Color: as selected by the Architect from the manufacturer's full color offering to match mortar.
  - 3. Size: 3/8 inch by size to match masonry unit dimensions.

## 2.09 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Pre-molded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, 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, organic roofing felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).
- D. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.



- E. Single Wythe Cavity Weep units: Provide continuously in base joint of single wythe masonry installations. Units shall be Cavity Weep TM CV 5010 as manufactured by MTI or approved equal.
- F. Grout Stop: Provide Hohmann & Barnard, Inc. - HGS Mortar / Grout Screen or approved equal; ASTM D5034, non-corrosive, high strength 1/4 inch mesh polypropylene monofilament screening in widths conforming to CMU units. Cut away as required to allow grout flow at reinforced core locations.

## 2.10 CAST ALUMINUM BRICK VENT

- A. BVC100 Cast Aluminum Brick Vent as manufactured by Ruskin®, 3900 Dr. Greaves Rd., Kansas City, MO 64030, Phone (816) 761-7476 or Architect approved equivalent.
  - 1. Material: #356 Aluminum Casting with asphaltum coating on parts built into masonry.
  - 2. Wall Thickness: nominal Aluminum Casting.
  - 3. Frame Construction: 4" Frame Depth with formed water stop at back edge and 1/4 inch drip at head and sill at exterior face.
  - 4. Standard Frame Size: As indicated on the drawings.
  - 5. Blades:
    - a. Style: Straight with 39% free area. Blades overlap for visual screening.
    - b. Material: Formed Aluminum, Alloy 6063-T5
    - c. Thickness: 0.100 inch, Nominal
    - d. Angle: 45 Degrees
  - 6. Insect Screen: 7 x 7 Aluminum Mesh
  - 7. Finish: 70 percent PVDF Fluoropolymer Based Paint Finish, AAMA 2605, Standard 2 Coat.
    - a. Color: As selected by the Architect from the manufacturer's full color offering.

## 2.11 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 masonry cement mortar unless otherwise indicated.
  - 3. For exterior masonry, use Portland cement-lime masonry cement mortar.
  - 4. For reinforced masonry, use Portland cement-lime masonry cement mortar.
  - 5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Pre-blended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a pre-blended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
  - 1. For masonry below grade or in contact with earth, use Type M.
  - 2. For reinforced masonry, use Type S.
  - 3. For mortar parge coats, use Type N.



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 N.
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
1. Pigments shall not exceed 10 percent of Portland cement by weight.
  2. Mix to match Architect's sample.
  3. Application: Use pigmented mortar for exposed mortar joints with the following units:
    - a. Architectural CMUs.
    - b. Cast stone trim units.
- E. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and natural color or white cement as necessary to produce required mortar color.
1. Mix to match Architect's sample.
  2. Application: Use colored aggregate mortar for exposed mortar joints with the following units:
    - a. Architectural CMUs.
    - b. Cast stone trim units.
- F. Grout for Unit Masonry: Comply with ASTM C476.
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 402/602 for dimensions of grout spaces and pour height.
  2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi(14 MPa).
  3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143/C143M.

## 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.
1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
  2. Verify that foundations are within tolerances specified.
  3. Verify that reinforcing dowels are properly placed.
- 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 INSTALLATION, GENERAL

- A. Build chases and recesses to accommodate items specified in this and other Sections.
- B. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.



- C. 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.

### 3.03 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 (6 mm in 3 m), 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.
- 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. 3 mm.

### 3.04 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Lay exposed masonry in running bond unless indicated otherwise on the Contract Drawings; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.



- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- G. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- H. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
  - 1. Install compressible filler in joint between top of partition and underside of structure above.
  - 2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c. unless otherwise indicated.
  - 3. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
  - 4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078446 - FIRE-RESISTIVE JOINT SYSTEMS.

### 3.05 MORTAR BEDDING AND JOINTING

- A. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- B. Set cast-stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
  - 1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
  - 2. Allow cleaned surfaces to dry before setting.
  - 3. Wet joint surfaces thoroughly before applying mortar.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.



### 3.06 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch 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 in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

### 3.07 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
  - 1. Provide an open space not less than 2 inches wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
  - 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
  - 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

### 3.08 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry using one of the following methods:
  - 1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
  - 2. Install preformed control-joint gaskets designed to fit standard sash block.
  - 3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.
  - 4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.
- C. Control Joint Locations:
  - 1. At major changes in wall height.
  - 2. At changes in wall thickness.
  - 3. At control joints in foundations, roofs and floors.
  - 4. At chases and recesses for piping, columns, fixtures, etc.
  - 5. At one side of wall openings less than 6 feet unless indicated otherwise.
  - 6. At both sides of wall opening exceeding 6 feet.



7. At or near wall intersections.
8. Near return wall angles in L, T, and U shaped structures.
9. All other cases, maximum spacing between joints shall not exceed 30 feet.

### 3.09 LINTELS

- A. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- B. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

### 3.10 FLASHING

- A. General: Install embedded flashing in masonry at lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
  1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
  2. At lintels, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
  3. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Section 079200 "Joint Sealants" for application indicated.
  4. Install metal drip edges with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Section 079200 - JOINT SEALANTS for application indicated.
  5. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.
  6. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal flashing termination.
  7. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- C. Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.
- D. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.



### 3.11 WEEP VENT INSTALLATIONS

- A. Place weep vents in head joints at exterior wythe of cavity wall located immediately above ledges and flashing, spaced 24 inches on center, unless otherwise shown. Leave the side of the masonry units forming the vent space unbuttered and clear of mortar. Install with notched side down. Slide vent material into joint as the two masonry units forming the weep vent are placed.

### 3.12 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
  - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
  - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 402/602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
  - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 402/602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
  - 2. Limit height of vertical grout pours to not more than 60 inches.
- D. Steel reinforcement bars, unless otherwise detailed on plans, shall be placed as follows:
  - 1. Install #5 bar, vertically at all corners and at door and window jambs and 32" o.c. typical in all 10" walls.
  - 2. Install #5 bar, vertically at all corners and at door and window jambs and 48" o.c. typical in all 12" walls.
  - 3. Fill all concrete masonry unit cells containing reinforcement bars solid with mortar.
  - 4. Remove pre-molded insulation from block cores containing vertical reinforcing bars.
  - 5. Reinforcement Bars shall be lapped at splices as follows:

Bar Size	Min. Lap Distance
#4	24 inches
#5	30 inches
#6	36 inches
#7	42 inches

### 3.13 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to meet specified requirements shall be done at Contractor's expense.
- B. Inspections: Level 1 special inspections according to the NYSBC.



1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
  2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
  3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140/C140M for compressive strength.
- F. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.
- G. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for compressive strength.
- H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.
- I. Prism Test: For each type of construction provided, according to ASTM C1314 at 28 days.

### 3.14 PARGING

- A. Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect parging until cured.

### 3.15 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. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. 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.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

### 3.16 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 Section 312323 - FILL.
  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



## 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. Loose bearing, Lintels and leveling plates for applications where they are not specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following:
  - 1. Loose steel lintels.
  - 2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

### 1.03 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

### 1.04 ACTION SUBMITTALS

- A. Product Data: For the following:
  - 1. Metal nosings.
  - 2. Grout.
- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
  - 1. Loose steel lintels.

### 1.05 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Welding certificates.

### 1.06 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code - Steel."
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."



## 1.07 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on the shop drawings.
  - 1. Established dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond with established dimensions.

## PART 2 - PRODUCTS

### 2.01 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Abrasive-Surface Floor Plate: Steel plate with abrasive material metallically bonded to steel.
  - 1. Products Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. IKG Industries, a division of Harsco Corporation; Mebac
    - b. Or approved equal.
- C. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
  - 1. Size of Channels: or as indicated.
  - 2. Material: Galvanized steel, ASTM A653/A653M, commercial steel, Type B, with G90 coating; 0.108-inch nominal thickness.

### 2.02 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners.
  - 1. Provide stainless-steel fasteners for fastening aluminum.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A653/A653M; and, where indicated, flat washers.
- C. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563; and, where indicated, flat washers.
  - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- D. Plain Washers: Round, ASME B18.22.1.
- E. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488/E488M, conducted by a qualified independent testing agency.
- F. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A47/A47M malleable iron or ASTM



A27/A27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.

## 2.03 MISCELLANEOUS MATERIALS

- A. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- D. Non-shrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, non-gaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- E. Concrete: Comply with requirements in Section 033000 - HISTORIC TREATMENT OF WOOD WINDOWS for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 4000 psi.

## 2.04 FABRICATION, GENERAL

- A. Shop Assembly: Pre-assemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form exposed work with accurate angles and surfaces and straight edges.
- D. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- E. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- F. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- G. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- H. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.



## 2.05 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
  - 1. Fabricate units from slotted channel framing where indicated.
- C. Fabricate steel pipe columns for supporting wood frame construction from steel pipe with steel baseplates and top plates as indicated. Drill or punch baseplates and top plates for anchor and connection bolts and weld to pipe with fillet welds all around. Make welds the same size as pipe wall thickness unless otherwise indicated.
  - 1. Unless otherwise indicated, fabricate from Schedule 40 steel pipe.
  - 2. Unless otherwise indicated, provide 1/2-inch baseplates with four 5/8-inch anchor bolts and 1/4-inch top plates.
- D. Galvanize miscellaneous framing and supports where indicated.

## 2.06 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Hot Dip Galvanize plates (2.0 oz. / sq. ft.).

## 2.07 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Galvanize loose steel lintels located in exterior walls - Hot Dip Galvanize (2.0 oz. / s.f.).

## 2.08 FINISHES, GENERAL

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

## 2.09 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M and ASTM A653/A653M for other steel and iron products.
  - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.



- B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
  - 1. Shop prime with universal shop primer primers specified in Section 099113 - EXTERIOR PAINTING unless indicated otherwise.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- B. Examine materials upon arrival at site. Notify the carrier and manufacturer of any damage.

### 3.02 INSTALLATION, GENERAL

- A. Install all factory-fabricated items in accordance with the manufacturer's specifications and recommendations.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- D. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- E. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, and other connectors.
- F. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- G. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
  - 1. Cast Aluminum: Heavy coat of bituminous paint.



### 3.03 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for securely to, and rigidly brace from, building structure.
- C. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installing Bearing and Leveling Plates" Article.

### 3.04 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with non-shrink grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

### 3.05 PROTECTION

- A. Protect installed products until completion of project.

### 3.06 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099113 "Exterior Painting."
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

**END OF SECTION**



## 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. Treated Wood Members.
  - 2. Miscellaneous Framing and Sheathing.
  - 3. Plywood Subfloors.
  - 4. Fasteners.
  - 5. Structural Hold Downs, Connectors and Framing Accessories.
  - 6. Framing with timber.
  - 7. Framing with engineered wood products.
  - 8. Wood blocking, cants, and nailers.
  - 9. Wood furring and grounds.

### 1.03 REFERENCES:

- A. AWP - (American Wood Preservers Association) C1 - All Timber Products Preservative Treatment by Pressure Process.
- B. APA - American Plywood Association.
- C. AITC - American Institute of Timber Construction.
- D. US Department of Commerce (DOC):
  - 1. DOC PS 1 - Performance Standard for Structural Plywood.
  - 2. DOC PS 2 - Performance Standard for Wood-Based Structural Panels.
- E. International Code Council (ICC):
  - 1. ICC IBC - International Building Code

### 1.04 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NLGA: National Lumber Grades Authority.
  - 3. SPIB: The Southern Pine Inspection Bureau.
  - 4. WCLIB: West Coast Lumber Inspection Bureau.
  - 5. WWPA: Western Wood Products Association.



#### 1.05 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
  - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
  - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
  - 5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

#### 1.06 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. Fire-retardant-treated wood.
  - 3. Plywood.
  - 4. Engineered wood products.
  - 5. Shear panels.
  - 6. Power-driven fasteners.
  - 7. Powder-actuated fasteners.
  - 8. Expansion anchors.
  - 9. Metal framing anchors.

#### 1.07 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Handle, Transport and Store Plywood Panels in accordance with the APA Storage and Handling recommendations.
- B. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.



- C. Stack panels flat with a minimum of three, full panel width, 4 inch by 4 inch spacers per eight foot panel length beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## PART 2 - PRODUCTS

### 2.01 WOOD PRODUCTS, GENERAL

- A. Certified Wood: Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship" for the following:
  - 1. Dimension lumber framing.
  - 2. Timber.
  - 3. Laminated-veneer lumber.
  - 4. Parallel-strand lumber.
  - 5. Miscellaneous lumber.
- B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
  - 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
  - 4. Provide dressed lumber, S4S, unless otherwise indicated.
- C. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness 15 percent for 2-inch nominal thickness or less, no limit for more than 2-inch nominal thickness unless otherwise indicated.
- D. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
  - 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- E. Plywood: Conform to requirements and recommendations provided in DOC PS 1 - Voluntary Product Standard for Construction and Industrial Structural Plywood.

### 2.02 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; UC2 (Interior Construction - Above Ground - Damp) for interior construction not in contact with the ground, Use Category UC3B



(Above Ground Exposed) for exterior construction not in contact with the ground, and UC4B (Ground Contact or Fresh Water - Heavy Duty) for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
  2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
  3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
  4. Wood framing members that are less than 18 inches (460 mm) above the ground in crawlspaces or unexcavated areas.
  5. Wood floor plates that are installed over concrete slabs-on-grade.

## 2.03 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Use treatment that does not promote corrosion of metal fasteners.
  2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D2898. Use for exterior locations and where indicated.
  3. Design Value Adjustment Factors: Treated lumber shall be tested according ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency. Mark panels on surfaces that will not be exposed in the final construction.



1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.
- E. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.
- F. Application: Treat items indicated on Drawings, and the following:
  1. Concealed blocking.
  2. Framing for non-load-bearing exterior walls.
  3. Roof construction.

#### 2.04 DIMENSION LUMBER FRAMING

- A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.
  1. Application: Interior partitions not indicated as load-bearing.
  2. Species:
    - a. Hem-fir (north); NLGA.
    - b. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
    - c. Northern species; NLGA.
- B. Load-Bearing Partitions: No. 2 grade.
  1. Species:
    - a. Southern pine; SPIB.
    - b. Douglas fir-larch; WCLIB or WWPA.
    - c. Hem-fir; WCLIB or WWPA.
    - d. Douglas fir-larch (north); NLGA.
    - e. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- C. Load-Bearing Partitions: Any species and grade with a modulus of elasticity of at least 1,600,000 psi and an extreme fiber stress in bending of at least for 2-inch nominal thickness and 12-inch nominal width for single-member use.
  1. Application: Exterior walls and interior load-bearing partitions.
- D. Ceiling Joists: Construction or No. 2 grade.
  1. Species:
    - a. Southern pine; SPIB.
    - b. Hem-fir; WCLIB or WWPA.
    - c. Douglas fir-south; WWPA.
    - d. Eastern softwoods; NeLMA.
- E. Joists, Rafters, and Other Framing Not Listed Above: No. 1 grade.
  1. Species:
    - a. Douglas fir-larch; WCLIB or WWPA.
    - b. Douglas fir-larch (north); NLGA.
    - c. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- F. Joists, Rafters, and Other Framing Not Listed Above: Any species and grade with a modulus of elasticity of at least 1,500,000 psi (10 350 MPa) and an extreme fiber stress in bending of at least 1000 psi (6.9 MPa) for 2-inch nominal thickness and 12-inch nominal width for single-member use.



- G. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
  - 1. Species and Grade: Southern pine; No. 1 grade; SPIB.
  - 2. Species and Grade: Douglas fir-south; No. 1 grade; WWPA.
  - 3. Species and Grade: Hem-fir; No. 1 grade; WCLIB or WWPA.

## 2.05 TIMBER FRAMING

- A. Provide timber framing complying with the following requirements, according to grading rules of grading agency indicated:
  - 1. Species and Grade: Douglas fir-larch, Douglas fir-larch (north), or Douglas fir-south; No. 1 grade; NLGA, WCLIB, or WWPA.
  - 2. Species and Grade: Eastern hemlock, eastern hemlock-tamarack, or eastern hemlock-tamarack (north); No. 1 grade; NeLMA or NLGA.
  - 3. Species and Grade: Mixed oak; Select Structural grade; NeLMA.

## 2.06 PLYWOOD SUBFLOORS

- A. Plywood Subflooring: 3/4 Performance category APA Rated STURD-I-FLOOR, 24" o.c., Group 1, Exterior, 48 inch by 96 inch, B-C face grades, Tongue and Groove (T&G) edges.

## 2.07 CONSTRUCTION MOUNTING PANELS

- A. Communications and Electrical Room Mounting Boards: PS 1, APA rated A-D faced plywood or MDF; 3/4 inch thick; flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.

## 2.08 ENGINEERED WOOD PRODUCTS

- A. Source Limitations: Obtain each type of engineered wood product from single source from a single manufacturer.
- B. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Georgia-Pacific.
    - b. Louisiana-Pacific Corporation.
    - c. Weyerhaeuser Company
    - d. Or approved equal.
  - 2. Extreme Fiber Stress in Bending, Edgewise: 2900 psi for 12-inch nominal depth members.
  - 3. Modulus of Elasticity, Edgewise: 1,900,000 psi .
- C. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D2559



## 2.09 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
  - 3. Grounds.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber and any of the following species:
  - 1. Hem-fir (north); NLGA.
  - 2. Mixed southern pine; SPIB.
  - 3. Hem-fir; WCLIB or WWPA.
  - 4. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
  - 1. Spruce-pine-fir (south) or spruce-pine-fir; Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
  - 2. Eastern softwoods; No. 2 Common grade; NeLMA.
- D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## 2.10 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or Type 304 stainless steel.
- B. Power-Driven Fasteners: NES NER-272.
- C. Wood Screws: ASME B16.1.
- D. Lag Bolts: ASME B18.2.1.
- E. Bolts: Steel bolts complying with ASTM A307, Grade A; with ASTM A563 hex nuts and, where indicated, flat washers.
- F. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as



determined by testing per ASTM E488/E488M conducted by a qualified independent testing and inspecting agency.

1. Material: Stainless steel with bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2.

## 2.11 METAL FRAMING ANCHORS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  1. Cleveland Steel Specialty Co.
  2. Simpson Strong-Tie Co., Inc.
  3. USP Structural Connectors.
- B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- C. Provide products that have been approved by the ICC-Evaluation Service with an accompanying Evaluation Service Report (ESR) listing locations of allowable use.
- D. Joist Hangers: U-shaped joist hangers with 2-inch long seat and 1-1/4-inch wide nailing flanges at least 85 percent of joist depth.
  1. Thickness: 0.062 inch.
- E. I-Joist Hangers: U-shaped joist hangers with 2-inch long seat and 1-1/4-inch wide nailing flanges full depth of joist. Nailing flanges provide lateral support at joist top chord.
  1. Thickness: 0.062 inch.
- F. Top Flange Hangers: U-shaped joist hangers, full depth of joist, formed from metal strap with tabs bent to extend over and be fastened to supporting member.
  1. Strap Width: 1-1/2 inches.
  2. Thickness: 0.062 inch.
- G. Bridging: Rigid, V-section, nail-less type, 0.050 inch thick, length to suit joist size and spacing.
- H. Joist Ties: Flat straps, with holes for fasteners, for tying joists together over supports.
  1. Width: 1-1/4 inches.
  2. Thickness: 0.062 inch.
  3. Length: As indicated.
- I. Rafter Tie-Downs: Bent strap tie for fastening rafters or roof trusses to wall studs below, 1-1/2 inches wide by 0.050 inch thick. Tie fasteners to side of rafter or truss, face of top plates, and side of stud below.
- J. Rafter Tie-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening rafters or roof trusses to wall studs below, 2-1/4 inches wide by 0.062 inch thick. Tie fits over top of rafter or truss and fastens to both sides of rafter or truss, face of top plates, and side of stud below.
- K. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches wide by 0.050 inch thick by 36 inches long.



- L. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.
  - 1. Bolt Diameter: 3/4 inch.
  - 2. Width: 3-3/16 inches.
  - 3. Body Thickness: 0.138 inch.
  - 4. Base Reinforcement Thickness: 0.108 inch.
- M. Wall Bracing: T-shaped bracing made for letting into studs in saw kerf, 1-1/8 inches (29 mm) wide by 9/16 inch deep by 0.034 inch thick with hemmed edges.
- N. Wall Bracing: Angle bracing made for letting into studs in saw kerf, 15/16 by 15/16 by 0.040 inch thick with hemmed edges.

## 2.12 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Adhesives for Gluing Furring to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

## PART 3 - EXECUTION

### 3.01 PREPARATION OF SURFACES

- A. Surfaces to receive new wood members shall be free of all dirt, debris, and loose materials. Exposed surfaces shall be mechanically scraped if necessary, to remove projections.
- B. Surfaces shall have no free water present in any form (rain, dew, frost, snow or ice).
- C. Contractor is responsible to inspect all exposed surfaces to see that conditions are satisfactory for installation of new work.

### 3.02 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb and in true alignment until completion of erection and installation of permanent bracing.
- D. Place horizontal members flat, crown side up.
- E. Construct load bearing framing and curb members full length without splices.



- F. Double members at all openings. Space short members over and under opening to member spacing.
- G. Bridge framing in excess of 8 feet span at midspan.
- H. Coordinate installation of adjacent construction.
- I. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- J. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
- K. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- L. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- M. Do not splice structural members between supports unless otherwise indicated.
- N. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
  - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- O. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
  - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
  - 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
  - 3. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.
- P. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- Q. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. NES NER-272 for power-driven fasteners.
  - 2. Table 2304.10.1, "Fastening Schedule," in ICC's "International Building Code" and the 2020 Building Code of New York State".
  - 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
- R. Warped wood members shall not be used unless they can be fastened adequately to permanently hold them in their required alignment.



- S. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
  - 1. Comply with approved fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
  - 2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
  - 3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

### 3.03 WOOD GROUND, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

### 3.04 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

### 3.05 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions and for load-bearing partitions where framing members bearing on partition are located directly over studs. Fasten plates to supporting construction unless otherwise indicated.
  - 1. For exterior walls, provide 2-by-6-inch nominal size wood studs spaced 24 inches o.c. unless otherwise indicated.
  - 2. For interior partitions and walls, provide 2-by-4-inch nominal size wood studs spaced 16 inches o.c. unless otherwise indicated.
- B. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
  - 1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.
  - 2. For load-bearing walls, provide double-jamb studs for openings 60 inches and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated or, if not indicated, according to Table R602.7(1) or Table R602.7(2), as applicable, in ICC's International Residential Code for One- and Two-Family Dwellings.



### 3.06 FLOOR JOIST FRAMING INSTALLATION

- A. General: Install floor joists with crown edge up and support ends of each member with not less than 1-1/2 inches of bearing on wood or metal, or 3 inches on masonry. Attach floor joists as follows:
  - 1. Where supported on wood members, by toe nailing or by using metal framing anchors.
  - 2. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.
- B. Fire Cuts: At joists built into masonry, bevel cut ends 3 inches and do not embed more than 4 inches.
- C. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 48 inches.
- D. Do not notch in middle third of joists; limit notches to one-sixth depth of joist, one-third at ends. Do not bore holes larger than 1/3 depth of joist; do not locate closer than 2 inches from top or bottom.
- E. Provide solid blocking of 2-inch nominal thickness by depth of joist at ends of joists unless nailed to header or band.
- F. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches or securely tie opposing members together. Provide solid blocking of 2-inch nominal thickness by depth of joist over supports.
- G. Anchor members paralleling masonry with 1/4-by-1-1/4 inch metal strap anchors spaced not more than 96 inches o.c., extending over and fastening to three joists. Embed anchors at least 4 inches into grouted masonry with ends bent at right angles and extending 4 inches beyond bend.
- H. Provide solid blocking between joists under jamb studs for openings.
- I. Under non-load-bearing partitions, provide double joists separated by solid blocking equal to depth of studs above.
  - 1. Provide triple joists separated as above, under partitions receiving ceramic tile and similar heavy finishes or fixtures.
- J. Provide bridging of type indicated below, at intervals of 96 inches o.c., between joists.
  - 1. Diagonal wood bridging formed from bevel-cut, 1-by-3-inch nominal size lumber, double-crossed and nailed at both ends to joists.
  - 2. Steel bridging installed to comply with bridging manufacturer's written instructions.

### 3.07 CEILING JOIST AND RAFTER FRAMING INSTALLATION

- A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.
  - 1. Where ceiling joists are at right angles to rafters, provide additional short joists parallel to rafters from wall plate to first joist; nail to ends of rafters and to top plate and nail to first joist or anchor with framing anchors or metal straps. Provide 1-by-8-inch nominal size or 2-by-4-inch nominal size stringers spaced 48 inches o.c. crosswise over main ceiling joists.



- B. Rafters: Notch to fit exterior wall plates and toe nail or use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.
  - 1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against valley rafters.
  - 2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against hip rafter.
- C. Provide collar beams (ties) as indicated or, if not indicated, provide 1-by-6-inch nominal size boards between every third pair of rafters, but not more than 48 inches o.c. Locate below ridge member, at third point of rafter span. Cut ends to fit roof slope and nail to rafters.
- D. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions if any.

### 3.08 STAIR FRAMING INSTALLATION

- A. Provide stair framing members of size, space, and configuration indicated or, if not indicated, to comply with the following requirements:
  - 1. Size: 2-by-12-inch nominal size, minimum.
  - 2. Material: solid lumber.
  - 3. Notching: Notch rough carriages to receive treads, risers, and supports; leave at least 3-1/2 inches of effective depth.
  - 4. Spacing: At least three framing members for each 36-inch clear width of stair.
- B. Provide stair framing with no more than 3/16-inch variation between adjacent treads and risers and no more than 3/8-inch variation between largest and smallest treads and risers within each flight.

### 3.09 TOLERANCES

- A. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

### 3.10 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

### END OF SECTION



## SHEATHING

**H2M**

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. Section Includes:
  - 1. Wall sheathing.
  - 2. Sheathing joint and penetration treatment.

#### 1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
  - 1. ASME B18.6.1 - Wood Screws (Inch Series).
- B. ASTM International (ASTM):
  - 1. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
  - 2. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials
  - 3. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings
  - 4. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials
  - 5. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- C. US Department of Commerce (DOC):
  - 1. DOC PS 2 - Performance Standard for Wood-Based Structural Panels.
- D. International Code Council (ICC):
  - 1. ICC IBC - International Building Code.
- E. ICC Evaluation Service, Inc. (ICC-ES):
  - 1. AC38 - Acceptance Criteria for Weather Resistive Barriers
  - 2. ICC-ES AC116 - Acceptance Criteria for Nails and Spikes
  - 3. ICC-ES AC148 - Acceptance Criteria For Flexible Flashing Materials
- F. International Association of Plumbing and Mechanical Officials (IAPMO):

#### 1.03 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

#### 1.04 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For following products, from ICC-ES:
  - 1. Preservative-treated plywood.
  - 2. Fire-retardant-treated plywood.
  - 3. Plywood Sheathing.
  - 4. Foam-plastic sheathing.
  - 5. Seam Tape.
- B. Product Certifications: From manufacturer, indicating that sheathing products comply with ICC ES AC266 and ICC-ES AC310.



## SHEATHING

**H2M**

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

### 1.05 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Handle, Transport and Store Plywood Panels in accordance with the APA Storage and Handling recommendations.
- B. Stack panels flat with a minimum of three, full panel width, 4 inch by 4 inch spacers per eight foot panel length beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory".

### 2.02 WOOD PANEL PRODUCTS

- A. Plywood: DOC PS 1 - Voluntary Product Standard for Construction and Industrial Structural Plywood.
- B. Oriented Strand Board: DOC PS 2, made with binder containing no added urea formaldehyde.
- C. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
- D. Factory mark panels to indicate compliance with applicable standard.

### 2.03 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC3b for exterior construction not in contact with the ground and Use Category UC4a for items in contact with the ground.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- C. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.



## 2.04 FIRE-RETARDANT-TREATED PLYWOOD

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
  - 1. Use treatment that does not promote corrosion of metal fasteners.
  - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D2898. Use for exterior locations and where indicated.
  - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
  - 4. Design Value Adjustment Factors: Treated lumber plywood shall be tested according to ASTM D 5516 and design value adjustment factors shall be calculated according to ASTM D 6305. Span ratings after treatment shall be not less than span ratings specified. For roof sheathing and where high-temperature fire-retardant treatment is indicated, span ratings for temperatures up to 170 deg F (76 deg C) shall be not less than span ratings specified.
- C. Kiln-dry material after treatment to a maximum moisture content of 15 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.
- E. Application: Treat plywood indicated on Drawings, and the following:
  - 1. Roof and wall sheathing within 48 inches (1220 mm) of fire walls.
  - 2. Roof sheathing.
  - 3. Subflooring and underlayment for raised platforms.

## 2.05 WALL SHEATHING

- A. Plywood Wall Sheathing: Exterior, Structural I sheathing.
  - 1. Span Rating: Not less than 24/0.
  - 2. Nominal Thickness: Not less than 1/2 inch (13 mm) 5/8 inch (15.9 mm).
- B. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. CertainTeed Corporation; GlasRoc.
    - b. G-P Gypsum Corporation; Dens-Glass Gold.
    - c. National Gypsum Company; Gold Bond e(2)XP.
    - d. United States Gypsum Co.; Securock.
  - 2. Type and Thickness: Type X, 5/8 inch (15.9 mm) thick.
  - 3. Size: 48 by 96 inches (1219 by 2438 mm) for vertical installation.



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- C. Cementitious Backer Units: ASTM C1325, Type A.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. USG Corporation; DUROCK Cement Board.
    - b. Or approved equal.
  - 2. Thickness: 1/2 inch (12.7 mm).
- D. Extruded-Polystyrene-Foam Wall Sheathing: ASTM C578, Type IV, in manufacturer's standard lengths and widths with tongue-and-groove or shiplap long edges as standard with manufacturer.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Dow Chemical Company (The).
    - b. Pactiv, Inc.
  - 2. Thickness: As indicated.

### 2.06 ROOF SHEATHING

- A. Plywood Roof Sheathing: Exterior, Structural I sheathing.
  - 1. Span Rating: Not less than 24/0.
  - 2. Nominal Thickness: Not less than 3/4 inch (19 mm).

### 2.07 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  - 1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or Type 304 stainless steel..
- B. Nails, Brads, and Staples: ASTM F1667, ICC AC116 and ICC AC201.
- C. Power-Driven Fasteners: ICC-ES-1539 or NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
  - 1. For wall and roof sheathing panels, provide screws with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B117.
- F. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B117.
  - 1. For steel framing less than 0.0329 inch (0.835 mm) thick, use screws that comply with ASTM C1002.
  - 2. For steel framing from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick, use screws that comply with ASTM C954.



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### 2.08 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

- A. Sealant for Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Section 079200 - JOINT SEALANTS.
- B. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
  - 1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches (50 mm) wide, 10 by 10 or 10 by 20 threads/inch (390 by 390 or 390 by 780 threads/m), of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.
- C. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.

### 2.09 MISCELLANEOUS MATERIALS

- A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 ASTM D 3498 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

## PART 3 - EXECUTION

### 3.01 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
  - 1. NES NER-272 for power-driven fasteners.
  - 2. Table 2304.10.1, "Fastening Schedule," in ICC's "International Building Code" and the 2020 Building Code of New York State".
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate wall and sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.



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- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

### 3.02 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
  - 1. Wall and Roof Sheathing:
    - a. Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels.
    - b. Screw to cold-formed metal framing.
    - c. Space panels 1/8 inch (3 mm) apart at edges and ends.
- C. Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant sequencing and installation and with adjacent building air and moisture barrier components to provide complete, continuous air- and moisture- barrier.
- D. Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.
- E. Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs. Support all panel edges.
  - 1. Space square-edged panels 0.125 inch (3 mm).
  - 2. Butt edges of self-spacing edge panels.
- F. Roof Sheathing Panel Clips: Where required under code approvals based upon panel thickness and support spacing, provide panel clips located at each unsupported panel butt joint centered between supports.
- G. Apply ZIP System Tape at all panel seams, penetrations, and facer defects or cracks to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.

### 3.03 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
  - 1. Fasten gypsum sheathing to wood framing with screws.
  - 2. Fasten gypsum sheathing to cold-formed metal framing with screws.
  - 3. Install boards with a 3/8-inch (9.5-mm) gap where non-load-bearing construction abuts structural elements.
  - 4. Install boards with a 1/4-inch (6.4-mm) gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent boards without forcing. Abut ends of boards over centers of studs, and stagger end joints of adjacent boards not less than one stud spacing. Attach boards at perimeter and within field of board to each steel stud.



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1. Space fasteners approximately 8 inches (200 mm) o.c. and set back a minimum of 3/8 inch (9.5 mm) from edges and ends of boards unless a tighter spacing is required by Structural Drawings
  2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
- D. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.
1. Space fasteners approximately 8 inches (200 mm) o.c. and set back a minimum of 3/8 inch (9.5 mm) from edges and ends of boards unless a tighter spacing is required by Structural Drawings.
  2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
- E. Seal sheathing joints according to sheathing manufacturer's written instructions.
1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient amount of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.
  2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

### 3.04 CEMENTITIOUS BACKER UNIT INSTALLATION

- A. Install panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated.

### 3.05 FOAM-PLASTIC SHEATHING INSTALLATION

- A. Comply with manufacturer's written instructions.
- B. Foam-Plastic Wall Sheathing: Install vapor-relief strips or equivalent for permitting escape of moisture vapor that otherwise would be trapped in stud cavity behind sheathing.
- C. Apply sheathing tape to joints between foam-plastic sheathing panels and at items penetrating sheathing. Apply at upstanding flashing to overlap both flashing and sheathing.

**END OF SECTION**



## 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. Plastic-laminate-faced architectural cabinets.
  - 2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.

### 1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products high-pressure decorative laminate adhesive for bonding plastic laminate.
  - 1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 1. Show details full size.
  - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural plastic-laminate cabinets.
  - 4. Apply AWI Quality Certification Program label to Shop Drawings.
- C. Samples for Initial Selection:
  - 1. Plastic laminates.
  - 2. Wood edge banding profiles.

### 1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer fabricator.
- B. Product Certificates: For each type of product.
  - 1. Composite wood and agrifiber products.
  - 2. Thermoset decorative panels.
  - 3. High-pressure decorative laminate (HPL).
  - 4. Adhesives.
- C. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

### 1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.



- B. Installer Qualifications: Fabricator of products.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar operations that could damage woodwork have been completed in installation areas. If cabinets must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

#### 1.07 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.
- C. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- D. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

#### 1.08 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

### PART 2 - PRODUCTS

#### 2.01 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
  - 1. Provide labels from AWI certification program indicating that woodwork, including installation, complies with requirements of grades specified.
  - 2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Custom



- C. Fabricators: Subject to compliance with requirements, available fabricators offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Tobin Woodworking, Inc., 155-B Allen Boulevard, Farmingdale, N.Y. 11735 (631) 249-1614.
  - 2. MTD Corporation, 41 Otis Street, W. Babylon, N.Y. 11704 (631) 491.3905  
www.mtdwoodwork.com.
  - 3. M & D Millwork, LLC, 178 New Highway, Amityville, N.Y. 11701 (631) 608.4444  
www.mdmillwork.com.
  - 4. North Shore Custom Woodworking, 16 Clifford Place, East Norwich, N.Y. 11732 (516) 946.9166 www.northshorecustomwoodworking.com.
  - 5. Lifetime Design Group, 162 E. Industry Court, Deer Park, N.Y. 11729 (631) 242.1162  
www.lifetimedesigncorp.com.
  - 6. Handcraft Cabinetry Inc., 230 Ferris Avenue, White Plains, N.Y. 10603 (914) 681-9437  
mike@handcraftcabinetry.com.
- D. Regional Materials: Plastic-laminate cabinets shall be manufactured within 500 miles (800 km) of Project site.
- E. Type of Construction: Flush Overlay
- F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Formica Corporation
    - b. Wilsonart International; Div. of Premark International, Inc.
    - c. Or approved equal.
- G. Laminate Cladding for Exposed Surfaces:
  - 1. Horizontal Surfaces: Grade HGL.
  - 2. Vertical Surfaces: Grade HGS.
  - 3. Edges: Grade HGS.
  - 4. Pattern Direction: As indicated.
- H. Materials for Semi-exposed Surfaces:
  - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade VGS.
    - a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
    - b. For semi-exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.
- I. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.
- J. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. As selected by Architect from laminate manufacturer's full range in the following categories:
    - a. Wood grains, matte finish.



- b. Patterns, matte finish.

## 2.02 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
  - 1. Wood Moisture Content: 5 to 10 percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
  - 1. Softwood Plywood: DOC PS 1.

## 2.03 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087100 "Door Hardware" and as indicated on the drawings.
- B. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- C. Shelf Rests: BHMA A156.9, B04013; metal.
- D. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
  - 1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
- E. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

## 2.04 MISCELLANEOUS MATERIALS

- A. Adhesives: Do not use adhesives that contain urea formaldehyde.
- B. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
  - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

## 2.05 FABRICATION

- A. Fabricate cabinets to dimensions, profiles, and details indicated.
- B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
  - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.



- C. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.
- B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

### **3.02 INSTALLATION**

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.
- C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
- D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
  - 1. Install cabinets with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
  - 2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches (400 mm) o.c. with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.

### **3.03 ADJUSTING AND CLEANING**

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean cabinets on exposed and semi-exposed surfaces.

## **END OF SECTION**



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Provide through penetration firestopping. The work of this section shall include, but not be limited to, the following:
  - 1. Provide firestopping at all openings in floors and fire rated walls and partitions to prevent the passage of fire, smoke or toxic gases and to maintain required fire ratings.
  - 2. Provide firestopping at all electrical, plumbing and electrical duct and pipe penetrations in floors, and fire-rated walls and partitions, to prevent the passage of fire, smoke or toxic gases.

## 1.02 QUALITY ASSURANCE

- A. Qualifications: The work of this section shall be performed by a qualified and experienced installer, acceptable to the Architect/Engineer. The term "installer", as used herein shall mean a firm of established reputation; which has been trained by the manufacturer in the proper installation of fire safing material and which is regularly engaged in, and maintains a regular force of workers skilled in the installation of fire safing material of the type specified.

## 1.03 REFERENCES

- A. Codes and Regulations: Comply with applicable regulations of governmental authorities having jurisdiction.
- B. ASTM E119, Method for Fire Tests of Building Construction and Materials.
- C. ASTM E814, Fire Tests of Through Penetration.
- D. U.L. 1479, Standards for Fire Tests of Through Penetration Firestops.
- E. Factory Mutual Systems.

## 1.04 SUBMITTALS

- A. Shop Drawings: Shop drawings shall indicate the locations and types of the various fire safing material to be used throughout the building, and material and methods of installation of damming for the various floor, wall and ceiling construction. Details of damming shall be large scale and shall indicate material and methods of installation.
- B. Product Data: Submit manufacturer's technical data and installation instructions.
- C. Test Reports: Submit copies of test reports, by an independent testing laboratory, indicating that the fire safing material complies with the specified requirements.

## 1.05 FIELD QUALITY CONTROL

- A. Section 014500 - Quality Control: field inspection and testing.
- B. Tests for thickness and density of applied material will be performed by an independent testing agency. Where test results are unsatisfactory in sample areas, additional tests in other areas may be made. Such further testing, if required, shall be by the same testing agency but shall be paid for by the installer.
- C. Independent Testing Agency will:



1. Inspect the installed firestopping after application and curing for integrity, prior to its concealment.
2. Ensure that actual thicknesses, densities, and bond strengths meet requirements for specified ratings.
3. Re-inspect the installed firestopping for integrity of fire protection, after installation of subsequent work.
4. Provide written certification to the Architect, indicating installation meets or exceeds requirements of contract documents.

#### 1.06 WARRANTY

- A. Provide standard manufacturer's warranty on material composition and resistance to breakdown.

### PART 2 - PRODUCTS

#### 2.01 FIRE RESISTANT SILICONE FOAM

- A. Acceptable materials are DOW CORNING Silicone RTV Foam, Chase-Foam CTCPR-855 by CHASE TECHNOLOGY CORP., Pensil RTV 851 by GENERAL ELECTRIC, or approved equal.
- B. Foam sealant shall conform to the required fire rating in accordance with the requirements of ASTM E119, with a flamespread rating of 15 in accordance with ASTM E84. Foam sealant shall also conform to UL Standard 1479: "Standards for Fire Tests of Through Penetration Firestops".
- C. The foam sealant shall provide a fire resistance equal to the construction into which it is installed; in accordance with "Through Penetration Firestop Systems (XHEZ)" in the Underwriters Laboratories "Building Materials Directory".
- D. Dams: Provide dams as recommended by the manufacturer, as required for proper installation and for required fire rating.

#### 2.02 MINERAL FIBER FIRE SAFING INSULATION

- A. Provide insulation as manufactured by USG INTERIORS, INC. Product "Thermafiber Safing", CAFCO INDUSTRIES LTD., FIBREX INC. or approved equal. Density shall be 4 pcf with thickness to suit condition.
- B. Provide 20 gauge minimum metal plate where required for fire safing support to comply with fire ratings.
- C. Do not use fibrous safing insulation unless it is in conjunction with a compatible smoke seal as specified herein.

#### 2.03 MINERAL WOOL

- A. Loose mineral wool, rated noncombustible when tested according to ASTM E136, free of asbestos and glass fiber, and suitable for stuffing into metal deck flutes to an in place density of 6 to 12 pcf.

#### 2.04 FIRESTOPPING SEALANT

- A. Provide a silicone firestop sealant classified for both flame and temperature ratings under ASTM E814.



- B. Acceptable materials are USG INTERIORS "Smoke Seal Compound", DOW CORNING "Firestop Sealant", BIO FIRESHIELD "Biotherm", 3M "Fire-Barrier Caulk", GENERAL ELECTRIC "RTV 7403" or approved equal.

#### 2.05 FIRESTOPPING MORTAR

- A. Provide Portland cement/fly ash mortar with an air dried density of 50 to 55 pounds per cu.ft. Mortar shall be classified for both flame and temperature ratings under ASTM E814.
- B. Acceptable materials are BIO FIRESHIELD "Novasit K-10" or approved equal.

#### 2.06 PREFORMED PIPE SEALS

- A. Provide preformed intumescent collars classified for both flame and temperature under ASTM E814.
- B. Acceptable materials are BIO FIRESHIELD "Firestop Collars", 3M "Wrap/Strip FS 195" or approved equal.

#### 2.07 ACCESSORIES

- A. Provide anchorage assemblies complying with U.L. designs and other components and accessories as needed.

### PART 3 - EXECUTION

#### 3.01 DELIVERY AND STORAGE

- A. Deliver material and products in unopened packages and containers, clearly indicating name of manufacturer and U.L. labeling. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage. Protect material from freezing or overheating in accordance with manufacturer's instructions.

#### 3.02 INSPECTION

- A. Examine all surfaces to which the firestopping materials are to be applied, and notify the Architect/Engineer in writing of any conditions detrimental to the proper and expeditious installation of the work. Starting of work within an area shall be construed as acceptance of the conditions of that area.
- B. Thoroughly clean all surfaces to receive firestopping material to eliminate mill scale, dirt, grime, oil, grease, dust, loose rust or paint, and all other foreign material.
- C. Cleaning shall be accomplished just prior to application of firestopping material.

#### 3.03 INSTALLATION (GENERAL)

- A. Material and equipment shall be as approved by the manufacturer. Application procedures shall be in strict accordance with the manufacturer's directions and specifications. Only experienced, skilled mechanics approved by the material manufacturer shall be allowed to place the material.
- B. Provide firestopping material at thicknesses as required to provide indicated ratings. Where not otherwise indicated, comply with U.L. standard designs. In multiple layer work, offset joints by at least 6 inches.



- C. Anchor firestopping using manufacturer's recommended system and in compliance with U.L. standard designs.
- D. Install firestopping without gaps and voids of any kind. Do not use damaged materials. Remove and replace nonfitting or disturbed work.

#### 3.04 MINERAL SAFING INSULATION

- A. Use mineral safing insulation at top of fire-rated partitions at underside of metal deck to provide complete fire-rated seal.
- B. Mineral safing insulation must be used in conjunction with a sealant or foam firestop to ensure a continuous smoke seal.

#### 3.05 FIRESTOPPING SEALANT

- A. Use firestopping sealant at narrow joints at fire-rated floor and wall penetrations, and at penetrations subject to vibration or movement. Typical penetrations requiring sealant are plumbing and HVAC piping, electric conduit and ductwork.
- B. Where openings are large enough, use mineral safing insulation in thicknesses required to dam the joint, and apply 1/2 inch minimum depth of sealant, or as required to achieve the rated assembly.

#### 3.06 FOAM-IN-PLACE FIRESTOPPING

- A. Apply foam-in-place firestopping material in depths required to meet the fire ratings indicated or required by U.L. standards. Provide clips or other approved means to contain the foam-in-place material which will enable the foam to solidly fill the areas intended. Mixing and application shall be in strict accordance with the manufacturer's written instructions.
- B. Foam firestopping may be used in lieu of sealant or mortar material at the Contractor's option, provided details conform to manufacturer's recommendations for maintaining the integrity of the assembly in question.

#### 3.07 FIRESTOPPING MORTAR

- A. Mortar may be used to firestop all large, nonmoving openings in fire-rated assemblies, including multiple openings in floor slabs.
- B. Mix mortar with clean water in accordance with the manufacturer's printed instructions. Wet all surfaces with water prior to application of mortar. Apply by hand or pump and vibrate in penetrations to prevent voids from forming.
- C. Do not apply mortar if ambient or substrate temperature is below 35°F during the 24 hour period before application.

#### 3.08 PREFORMED PIPE SEALS

- A. Use preformed pipe seals for firestopping nonmetallic pipes or conduit penetrating rated assemblies. Preformed collars may be surface mounted or embedded in firestop mortar as space permits to seal PVC or ABS pipe penetrations. Size selection and installation shall be in strict accordance with manufacturer's written instructions.



**3.09 FIELD QUALITY CONTROL**

- A. Coordinate installation of firestopping work with other work to minimize cutting and removal of installed firestopping. As work of other trades is completed, review firestopping work and repair or replace work which has been damaged or removed. Inspections will be performed to verify compliance with requirements.

**3.10 CLEANING AND PROTECTION**

- A. Upon completion of the work, remove all unused materials from the site. Clean floors, walls and other adjacent surfaces that are stained, marred or otherwise damaged by this work. Leave all work and the adjacent areas in a clean condition.
- B. Protect all completed work from damage, by methods recommended by the manufacturer of installed material.

**3.11 SYSTEMS AND APPLICATION SCHEDULE**

A.	CONSTRUCTION CONDITION	UL DESIGNATION
B.	Metal Pipe or Conduit	220, 221, 223
1.	Through Round Opening	316, 400, 425
C.	Insulated Metal Pipe	301, 310, 402, 403
1.	Through Round Opening	
D.	Metal Pipes or Conduits	399
1.	Through Large Openings	
E.	Cables Through Opening	222, 224, 307, 425
F.	Nonmetallic (Plastic) Pipe	300
1.	or Conduit through Opening	
G.	Metal Pipe or Conduit	425
1.	Through Gypsum Board Wall	
H.	Nonmetallic (Plastic) Pipe	226, 227, 228, 312
1.	or Conduit Through Gypsum	
2.	Board Wall	
I.	Cables Through Gypsum	425
1.	Board Wall	
J.	Mixed Penetrating Items	218, 219
K.	1. Ductwork Insulated	301
	1. Through Gypsum Board Wall in	227, 313
	2. Sleeve Opening	
L.	1. Ductwork	218, 219
	1. 2 Hr Gypsum Wall	312



- 3.12 PROVIDE ADDITIONAL UL DESIGNATION AS REQUIRED TO ACHIEVE FIRESTOPPING RATINGS EQUAL TO OR GREATER THAN ASSEMBLY PENETRATION.

**END OF SECTION**



## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Non-fire-rated hollow metal frames for non-hollow metal doors.
- B. Fire-rated hollow metal frames for non-hollow metal doors.
- C. Interior glazed borrowed lite frames.

### 1.02 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.
- C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2017.
- D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2018.
- G. 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.
- H. ASTM C476 - Standard Specification for Grout for Masonry; 2016.
- I. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015a.
- J. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2016.
- K. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
- L. ITS (DIR) - Directory of Listed Products; current edition.
- M. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.
- N. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.
- O. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2007.
- P. NFPA 80 -Standard for Fire Doors and Other Opening Protectives; 2013



- Q. UL (DIR) - Online Certifications Directory; Current Edition.
- R. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; 2009

### 1.03 SUBMITTALS

- A. See Section 013300 - SUBMITTALS for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.
- D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
- E. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

### 1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with applicable requirements and in compliance with standards and/or custom guidelines as indicated.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Hollow Metal Frames with Integral Casings:
  - 1. Ceco Door, an Assa Abloy Group company: [www.assaabloydss.com](http://www.assaabloydss.com).
  - 2. Republic Doors: [www.republicdoor.com](http://www.republicdoor.com).
  - 3. Steelcraft, an Allegion brand: [www.allegion.com/sle](http://www.allegion.com/sle).
  - 4. Or approved equal.

### 2.02 PERFORMANCE REQUIREMENTS

- A. Refer to Door and Frame Schedule on the drawings for frame sizes, fire ratings, sound ratings, finishing, door hardware to be installed, and other variations, if any.
- B. Door Frame Type: Provide hollow metal door frames with integral casings.
- C. Steel used for fabrication of frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM



A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.

- D. Accessibility: Comply with ICC A117.1 and ADA Standards.
- E. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Flush.
- F. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior frame that is also indicated as being sound-rated must comply with the requirements specified for exterior frames and for sound-rated frames; where two requirements conflict, comply with the most stringent.
- G. Hardware Preparations, Selections and Locations: Comply with BHMA A156.115, NAAMM HMMA 830 and NAAMM HMMA 831 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- H. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
- I. Mullions for Pairs of Doors: Fixed, except where removable is indicated, with profile similar to jambs.
- J. Frames for Interior Glazing or Borrowed Lites: Construction and face dimensions to match door frames, and as indicated on drawings.
- K. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high (102 mm) to fill opening without cutting masonry units.

## 2.03 HOLLOW METAL DOOR FRAMES WITH INTEGRAL CASINGS

- A. Frame Finish: Factory primed and field finished.
- B. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
  - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 - Extra Heavy-duty.
    - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Frame Metal Thickness: 16 gauge, 0.053 inch (1.3 mm), minimum.
- C. Fire-Rated Door Frames:
  - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 - Extra Heavy-duty.
    - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Frame Metal Thickness: 16 gauge, 0.053 inch (1.3 mm), minimum.
  - 2. Fire Rating: As indicated on Door and Frame Schedule, tested in accordance with UL 10C or NFPA 252 ("positive pressure fire tests").
  - 3. Provide units listed and labeled by ITS (DIR) or UL (DIR).
    - a. Attach fire rating label to each fire rated unit.



## 2.04 ACCESSORIES

- A. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
- B. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches (102 mm) as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.
- C. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

## 2.05 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.
- B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

### 3.02 PREPARATION

- A. Coat inside of frames with bituminous coating to a thickness of 1/16 inch.

### 3.03 INSTALLATION

- A. Install frames in accordance with manufacturer's instructions and related requirements of specified frame standards or custom guidelines indicated.
- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Coordinate installation of glazing.
- E. Coordinate installation of hardware.
- F. Coordinate installation of electrical connections to electrical hardware items.

### 3.04 TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch (1.6 mm) measured with straight edges, crossed corner to corner.



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### 3.05 SCHEDULE

- A. Refer to Door and Frame Schedule on the drawings.

**END OF SECTION**



## 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. Solid-core doors with wood-veneer faces.
  - 2. Factory finishing flush wood doors.
  - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
  - 4. Louvers installed in flush wood doors.
  - 5. Light frames and glazing installed in wood doors.

### 1.03 ACTION SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
  - 1. Dimensions and locations of blocking.
  - 2. Dimensions and locations of mortises and holes for hardware.
  - 3. Dimensions and locations of cutouts.
  - 4. Undercuts.
  - 5. Requirements for veneer matching.
  - 6. Doors to be factory finished and finish requirements.
  - 7. Fire-protection ratings for fire-rated doors.
- C. Samples for Verification:
  - 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish.
  - 2. Louver blade and frame sections, 6 inches long, for each material and finish specified.
  - 3. Frames for light openings, 6 inches long, for each material, type, and finish required.

### 1.04 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body and is a certified participant in AWI's Quality Certification Program.
- B. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.
- C. Fire Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated,



based on testing at positive pressure according to NFPA 252 (neutral pressure at 40" above sill) or UL 10C.

1. Oversize Fire Rated Door Assemblies: For units exceeding sizes of tested assemblies provide manufacturer's construction label, indicating compliance to independent 3rd party certification agency's procedure, except for size.
  2. Temperature Rise Limit: Where required and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire test exposure.
- D. Smoke Control Door Assemblies: Comply with NFPA 105.
1. Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

#### 1.07 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

#### 1.08 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
  1. Failures include, but are not limited to, the following:
    - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42 by 84-inch section.
    - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3 inch span.
  2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  3. Warranty Period for Solid-Core Interior Doors: Life of installation.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  1. Eggers Industries
  2. Graham Wood Doors; an Assa Abloy Group company
  3. Marshfield - Algoma; a Masonite company
- B. Source Limitations: Obtain flush wood doors indicated to be blueprint matched with paneling from single manufacturer.



## 2.02 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards WDMA I.S. 1A, "Architectural Wood Flush Doors."
  - 1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.
  - 2. Contract Documents contain selections chosen from options in quality standard and additional requirements beyond those of quality standard. Comply with those selections and requirements in addition to quality standard.
- B. ICC A117.1 - Accessible and Usable Buildings and Facilities.
- C. WDMA I.S. 1A Performance Grade: Heavy Duty and Extra Heavy Duty as specified.
- D. WDMA I.S. 1A Performance Grade:
  - 1. Heavy Duty unless otherwise indicated.
  - 2. Extra Heavy Duty: public toilets, janitor's closets and assembly spaces.
  - 3. Standard Duty: Closets (not including janitor's closets) .
- E. Fire-Rated Wood Doors: Doors 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.
  - 1. Temperature-Rise Limit: Where indicated, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
  - 2. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
  - 3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- F. Mineral-Core Doors:
  - 1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
  - 2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
    - a. 5-inch top-rail blocking (HB-1).
    - b. 5-inch bottom-rail blocking, in doors indicated to have protection plates (HB-2).
    - c. 5-inch midrail blocking, in doors indicated to have armor plates (HB-6).
    - d. 5-inch midrail blocking, in doors indicated to have exit devices (HB-6).
  - 3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges (HB-7).
    - a. Screw-Holding Capability: 550 lbf per WDMA TM-10.

## 2.03 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
  - 1. Grade: Premium with Grade A faces.
  - 2. Species: White Oak.



## FLUSH WOOD DOORS

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3. Cut: Rotary cut.
4. Match between Veneer Leaves: Book match.
5. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
6. Exposed Vertical and Top Edges: Same species as faces - edge Type A.
7. Core: Either glued wood stave or structural composite lumber.
8. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
9. WDMA I.S. 1A1-A Performance Grade: Extra Heavy Duty.

### 2.04 LIGHT FRAMES AND LOUVERS

- A. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.
  1. Anemostat Door Products; WoodPro Wood Veneer FR Metal Vision Frame with no visible fasteners, for 3/16" or 1/4" glazing, Species: White Oak, finish to match door face panels.
  2. or approved equal.
- B. Metal Vision Light Frames for Fire Rated Doors: 18 and 20 gauge cold rolled steel, Custom Color Baked Enamel finish, Type M4 as per WDMA I.S. 1A as manufactured by one of the following:
  1. Anemostat Door Products; LoPro Metal Vision Frames for 1/4" or 5/16" glazing and StormPro-HR Hurricane Rated Metal Vision Frame.
  2. or approved equal.
- C. Metal Louvers:
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Air Louvers, Inc
    - b. Anemostat; a Mestek company
    - c. or approved equal.
  2. Blade Type: Vision-proof, inverted V, L4 Chevron as per WDMA I.S. 1A.
  3. Metal and Finish: Hot-dip galvanized steel, 0.040 inch thick, with baked-enamel or powder-coated finish.

### 2.05 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
  1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA A156.115W, and hardware templates.
  1. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Factory cut and trim openings through doors.
  1. Light Openings: Trim openings with moldings of material and profile indicated.



2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 - GLAZING.
3. Louvers: Factory install louvers in prepared openings.

## 2.06 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors that are indicated to receive transparent finish.
- C. Transparent Finish:
  1. Grade: Premium.
  2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" System 10. UV Curable, Water Based.
  3. Finish: WDMA TR-6/OP-6 (Extra Heavy-Duty) and TR-4/OP-4 (Heavy-Duty) catalyzed polyurethane.
  4. Staining: As selected by Architect from manufacturer's full range.
  5. Effect: Semi-filled finish, produced by applying an additional finish coat to partially fill the wood pores or as selected by the architect.
  6. Sheen: Semi-gloss.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
  1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Hardware: For installation, see Section 087100 - DOOR HARDWARE.
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
  1. Install fire-rated doors according to NFPA 80.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
  1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.



- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

### 3.03 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

### **END OF SECTION**



## FIRE RATED GLASS AND FRAMING SYSTEMS-FIREFRAMES DESIGNER

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## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. Fire rated door and framing systems for installation as vision lights in fire rated doors, full vision fire rated doors, and borrowed Lights in interior openings.

### 1.02 REFERENCES

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.
- C. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.
- D. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.
- E. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2017.
- F. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015.
- G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2018.
- 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 C1036 - Standard Specification for Flat Glass; 2016.
- J. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- K. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2016a.
- L. ASTM E2010: Standard Test Method for Positive Pressure Fire Tests of Window Assemblies.
- M. ASTM E2074: Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.



## FIRE RATED GLASS AND FRAMING SYSTEMS-FIREFRAMES DESIGNER

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- N. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- O. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.
- P. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).
- Q. ASTM E413 - Classification for Rating Sound Insulation; 2016.
- R. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
- S. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; 2018.
- T. BHMA A156 - American National Standards for door hardware.
- U. CPSC 16 CFR 1201 Categories I and II: Safety Standard for Architectural Glazing Materials.
- V. NFPA 251: Standard Methods of Tests of Fire Endurance of Building Construction and Materials.
- W. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2018.
- X. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.
- Y. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.
- Z. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

### 1.03 DEFINITIONS

- A. Manufacturer: A firm that produces primary glass, fabricated glass or framing as defined in referenced glazing publications.

### 1.04 SUBMITTALS

- A. Submit in accordance with Section 013300 - SUBMITTALS.
- B. Product Data:
  - 1. Technical Information: Submit latest edition of manufacturer's product data providing product descriptions, technical data, Underwriters Laboratories, Inc. listings and installation instructions.
- C. Shop Drawings:
  - 1. Include plans, elevations and details of product showing component dimensions; framed opening requirements, dimensions, tolerances, and attachment to structure



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- D. Structural Calculations:
  - 1. Provide structural calculations sealed by a licensed professional engineer in the State in which the project is located; prepared in compliance with referenced documents and these specifications.
- E. Hardware schedule: list of manufacture supplied hardware and verification of cylinder size complying with Section 087100 - DOOR HARDWARE.
- F. Samples: For following products:
  - 1. Two 8-inch by 10-inch samples for glass
  - 2. Sample of steel frame
  - 3. Verification of sample of selected finish
- G. Glazing Schedule: Use same designations indicated on drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- H. Warranties: Submit manufacturer's warranty.
- I. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements.
  - 1. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.

### 1.05 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to:
  - 1. International Accreditation Service for a Type A Third-Party Inspection Body (Field Services ICC-ES Third-Party Inspections Standard Operating Procedures, 00-BL-S0400 and S0401)
  - 2. International Accreditation Service for Testing Body-Building Materials and Systems
    - a. Fire Testing
      - 1) ASTM Standards: ASTM E119
      - 2) CPSC Standards 16 CFR 1201
      - 3) NFPA Standards 251, 252, 257
      - 4) UL Standards 9, 10B, 10C, 1784, UL Subject 63
      - 5) BS 476; Part 22: 1987
      - 6) EN 1634-1
- B. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association Glazier Certification Program as Level 2 (Senior Glaziers) or Level 3 (Master Glaziers).
- C. Source Limitations for Glazing Accessories: Obtain framing system, glazing and glazing accessories from one source for each product and installation method indicated.
- D. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by UL, for fire ratings indicated, based on testing according to NFPA 252. Assemblies must be



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factory-welded or come complete with factory-installed mechanical joints and must not require job site fabrication.

- E. Fire-Rated Window Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by UL, for fire ratings indicated, based on testing according to NFPA 257. Assemblies must be factory-welded or come complete with factory-installed mechanical joints and must not require job site fabrication.
- F. Listings and Labels - Fire Rated Assemblies: Under current follow-up service by Underwriters Laboratories® maintaining a current listing or certification. Label assemblies accordance with limits of manufacturer's listing.
- G. Regulatory Requirements: Comply with provisions of the following:
  - 1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA) as follows:
    - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
    - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
      - 1) Accessible doors no more than 5 lbf push or pull force
      - 2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction
  - 2. NFPA 101: Comply with the following for means of egress doors:
    - a. Latches, Locks and Exit Devices: Not more than 15 lbf (67 N) to release the latch, Locks shall not require the use of a key, tool, or special knowledge for operation.
    - b. Door Closers: Not more than 30 lbf (133 N) to set door in motion and not more than 15lbf (67 N) to open door to minimum required width.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle under provisions specified by manufacturer.
  - 1. At delivery inspect all containers for damage.
  - 2. Examine glass and frame units for damage.
  - 3. List all damage to containers on the shipping company's Bill of Lading
  - 4. Report damage to manufacturer immediately.
  - 5. Store glazing materials and frame units in original packing containers
  - 6. Do expose glazing material of frame units to sunlight and weather.
  - 7. Do not store horizontally.
  - 8. Place glass and frames upright, no less than 6 degrees from vertical.
  - 9. Store all materials in dry conditions, off the ground.
  - 10. Protect from construction activities.
  - 11. Fully support Glass units along entire length
  - 12. Glass and frame units must be separated by non-abrasive pads such as cloth or cork.
  - 13. Do not stack containers

#### 1.07 PROJECT CONDITIONS

- A. Obtain field measurements prior to fabrication of frame units. If field measurements will not be available in a timely manner coordinate planned measurements with the work of other sections.
  - 1. Note whether field or planned dimensions were used in the creation of the shop drawings.



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- B. Coordinate the work of this section with others effected including but not limited to: other interior and/or exterior envelope components and door hardware beyond that provided by this section

#### 1.08 WARRANTY

- A. Provide the Pilkington Pyrostop® and Fireframes® Series by TGP limited five-year warranty dated from date of shipment from the factory.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS - FIRE RATED WINDOWS

- A. Glass Material:
  - 1. Glass: Pilkington Pyrostop fire-rated glazing as fabricated and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 (800-426-0279) fax (800-451-9857) e-mail sales@fireglass.com. (Basis of Design).
  - 2. or Approved Equal
- B. Frame System:
  - 1. Frame System: Fireframes Clearview System by TGP, fire-rated steel frame system as manufactured and supplied by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 (800-426-0279) fax (800-451-9857) e-mail sales@fireglass.com. (Basis of Design).
  - 2. or approved equal.

### 2.02 MANUFACTURERS - FIRE RATED DOORS

- A. Glass Material:
  - 1. Glass: Pilkington Pyrostop fire-rated glazing as fabricated and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 (800-426-0279) fax (800-451-9857) e-mail sales@fireglass.com. (Basis of Design).
  - 2. or Approved Equal
- B. Frame System:
  - 1. Frame System: Fireframes Designer Series by TGP, fire-rated steel frame system as manufactured and supplied by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 (800-426-0279) fax (800-451-9857) e-mail sales@fireglass.com. (Basis of Design).
  - 2. Frame System: GPX Architectural Series fire-rated frame system as manufactured and supplied by Safti First fire-rated glazing solutions, 100 N. Hill Drive, Suite 12, Brisbane, CA 94005 (888-653-4444); email: info@safti.com.
  - 3. or approved equal.

### 2.03 PERFORMANCE REQUIREMENTS

- A. Fire Rating Requirements
  - 1. Duration -- Doors: Capable of providing a fire rating for 60 minutes.
  - 2. Duration-- Window Assembly: Capable of providing a fire rating for 60 minutes.
  - 3. Duration--Opening Applications in fire partitions or area separation walls and corridors where opening protection is specified: Capable of providing 60 minute rating.



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- B. Delegated design: For the performance requirements listed below requiring structural design provide data, calculations and drawings signed and sealed by an engineer licensed in the state where the project is located.
- C. Design Requirements:
  - 1. Dimensions – Door and Framing:
    - a. Door framing face dimension: 1 15/16-inch.
    - b. Depth of door framing: 1 15/16-inch.
    - c. Door style face dimension: 3 1/8-inch.
    - d. Door cross rail (if applicable) face: 3 9/16-inch.
    - e. Depth of stile, header, sill and cross rail: 1 15/16-inch
  - 2. Dimensions -- Window Assembly:
    - a. Perimeter framing face dimension: 2 3/4-inch at head, sill and jamb.
    - b. Horizontal and/or vertical mullions: 3 9/16-inch on the face.
    - c. Depth of perimeter and mullion: 1 15/16-inch.
  - 3. Construction: Narrow-profile, roll-formed steel architectural grade specialty fire doors. Conventional break-shape type hollow metal steel fire-rated doors will not be considered an acceptable substitute for the Fireframes Designer Series doors specified in this section as they do not conform to the project design intent and/or aesthetic and quality standards.
    - a. Knock down frames are not permitted.
- D. Structural Performance
  - 1. Design and size the system to withstand structural forces placed upon it without damage or permanent set when tested in accordance with ASTM E330/E330M using load 1.5 times the design wind loads and of 10 seconds in duration.
  - 2. Positive wind load: as indicated on the drawings.
  - 3. Negative wind Load: as indicated on the drawings.
  - 4. Member deflection: Limit deflection of the edge of the glass normal to the plane of the glass to 1/175 of the glass edge length or 3/4 inch, whichever is less of any framing member
  - 5. Accommodate movement between storefront and adjoining systems
- E. Air infiltration: Provide systems that allow a maximum air leakage through fixed glazed openings of 0.06 cfm/sq. ft. of area when tested per ASTM E283 at a static air differential of 6.24 lbf/sq ft
- F. Water Penetration
  - 1. Under Static pressure, provide systems that do not show uncontrolled water leakage when tested according to ASTM E331 under static pressure equal to 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft.
  - 2. Under Dynamic pressure, provide systems that do not show uncontrolled water leakage when tested according to AAMA 501.1 under static pressure equal to 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft.

#### 2.04 MATERIALS - GLASS

- A. Fire Rated Glazing: ASTM C1036 and ASTM C1048; composed of multiple sheets of glass laminated with an intumescent interlayer glazing material.
- B. Impact Safety Resistance: ANSI Z97.1 and CPSC 16 CFR 1201 (Cat. I and II)



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- C. Thickness of Glazing Material: 7/8" Pilkington Pyrostop 60 minute.
- D. Approximate Visible Transmission: Varies with thickness (approximate range 88 percent).
- E. Logo: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, manufacture, testing laboratory (UL® only), fire rating period, safety glazing standards, and date of manufacture.
- F. Performance: Glass must be rated to stop fire from either direction and must meet all testing requirements including the required hose-stream test (where fire-rating exceeds 20 minutes).

### 2.05 MATERIALS – FRAMES AND DOORS

- A. Steel Framing System including 60-minute rated doors, 60-minute rated windows.
  - 1. Frame: Steel profiled formed tubing.
  - 2. Fasteners: As recommended by manufacturer
  - 3. Glazing Accessories: calcium silicate setting blocks.
  - 4. Glazing Compounds:
    - a. FireLite®, FireLite Plus®, FireLite® NT, FireLite® IGU, Fireglass®20, or Pilkington Pyrostop®: Approved pure silicone sealant Glaze FireLite® panels that exceed 1,393 sq. inches for 90-minute ratings with "Kerafix 2000" glazing tape supplied by manufacturer.
    - 1) When glazed with Pilkington Pyrostop (60-90 minutes) glazing products, doors meet the maximum transmitted temperature rise of not more than 450 degrees Fahrenheit (250 degrees Celsius) at the end of 30 minutes of the standard fire test exposure.
- B. Doors:
  - 1. Manufacturer's standard double leaf with manufacturer's standard hardware.
  - 2. Coordinate door hardware with cylinder as specified.

### 2.06 FABRICATION

- A. Furnish frame assemblies pre-welded.
  - 1. When necessary, splice frames too large for shop fabrication or shipping or to fit in available building openings.
  - 2. Fit with suitable fasteners.
  - 3. Knock-down frames are not permitted
- B. Furnish Welded interior frame assemblies.
  - 1. When necessary, splice frames too large for shop fabrication or shipping or to fit in available building openings.
  - 2. Fit with suitable fasteners.
  - 3. Knock-down door perimeter frames are not permitted
- C. Field glaze door and frame assemblies.
- D. Factory prepare steel door assemblies and install all hardware.
- E. Fabrication Dimensions: Fabricate to fire-rated field dimensions.



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- F. Obtain approved shop drawings prior to fabrication.

#### 2.07 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish frames after assembly.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

#### 2.08 FACTORY FINISHES

- A. Color-Coated Finish: Apply manufacturer's standard powder coating finish system complying with AAMA 2605 applied to factory-assembled frames before shipping, complying with manufacturer's written instructions for surface preparation including pretreatment, application, and minimum dry film thickness.
- B. Color and Gloss: As selected by Architect from manufacturer's full range.
- C. Acceptable Manufacturers:
  - 1. Tiger Drylac
  - 2. Additional manufacturers as approved by TGP

#### 2.09 DOOR HARDWARE

- A. Furnish hardware with 45 minute fire door by the manufacturer.
- B. Select hardware from door manufacturer's standard recommended and approved hardware groups as specified in Division 8 Section 087100 - DOOR HARDWARE.
- C. Provide power assisted hardware for use at any door that cannot meet the opening force(s) required by code noted in Part I above.
  - 1. High energy, power-operated doors must meet the requirements of BHMA A156.10 and power-assisted low energy doors must comply with BHMA A156.19
- D. Operating hardware for Fireframes® Designer Series Active-Active Pair of Doors Outswing with Exit Device. Each pair to have the following.

	ITEM	DESCRIPTION	MANUFACTURER	FINISH
6	Hanging Devices	Weld on Pivots	Technical Glass Products	PTM
2	Exit Device	F9600 Concealed	Dorma	630
2	Lever Trim	ZT08 tubular level handles	Dorma	630
1	Cylinder	ANSI Mortise Schlage C	Technical Glass Products	626
		Keyway		
2	Closing Devices	TS 93 Surface Applied Closer	Dorma	689
2	Auto door Bottoms	420APKL Smoke Seal	Pemko	MA
1	Auxiliary Fire Latch	Used with exit device with no bottom rod	Technical Glass Products	630
1	Weather Seal	Perimeter Gasket	Technical Glass Products	



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- E. Balance of hardware by others

Balance of hardware by others

#### 2.10 \* FINISH LEGEND:

- A. PTM: Painted to match frame
- B. MA: Mill Finish Aluminum
- C. 689: Aluminum Paint
- D. 630: Satin Stainless Steel
- E. 626: Satin Chrome Plated

#### 2.11 ACCESSORY MATERIALS

- A. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with ASTM D1187/D1187M; Type I.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and members to which the work of this section attaches or adjoins prior to frame installation.
- B. Provide openings plumb, square and within allowable tolerances.
  - 1. Provide 3/8 inch shim space at all walls
- C. Notify Architect of any conditions which jeopardize the integrity of the proposed fire wall / door system.
- D. Do not proceed until such conditions are corrected.

### 3.02 INSTALLATION

- A. Follow manufacturer's written instructions and approved shop drawings.
- B. Install fully welded fire window, door, and wall in strict accordance with the approved shop drawings.
- C. Install fire safing / fire stopping at edges of system
- D. Install glazing in strict accordance with fire rated glazing material manufacturer's specifications.
  - 1. Field cutting or tampering is not permissible.
- E. Do not install damaged frames or chipped glazing units.



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- F. Install plumb and true. Limit out of plumb or true to 1/8 inch in 10'-0" in any dimension.

### 3.03 REPAIR AND TOUCH UP

- A. Limited to minor repair of small scratches. Use only manufacturer's recommended products.
  - 1. Such repairs shall match original finish for quality or material and view.
- B. Anodized Finishes:
  - 1. Protect the anodized finish from harsh chemicals such as concrete/mortar or muriatic acid/brick wash. If reasonable care is taken during handling and high and low pH chemicals can be avoided, repair and/or touch up of an anodized finish will not be needed.
  - 2. Some rub marks on an anodized finish can be removed with a mild abrasive pad, such as a Scotch-Brite pad, prior to touch up painting.
  - 3. Touch up paint should be used even more sparingly over anodize. Only the visible raw aluminum in the scratch or gouge should be touched up with a matching paint.
- C. Powder Coated Finishes
  - 1. Limited to minor repairs of small scratches. Use only manufacturer's recommended products.
  - 2. Such repairs shall match original finish for quality or material and view.
  - 3. Repairs and touch up not visible from a distance of 5 feet to be approved by Owner and Architect.
- D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged.

### 3.04 ADJUSTING

- A. Adjust door function and hardware for smooth operation. Coordinate with other hardware suppliers for function and use of any other attached hardware.

### 3.05 PROTECTION AND CLEANING

- A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove non-permanent labels, and clean surfaces.
  - 1. Do not clean with astringent cleaners. Use a clean "grit free" cloth and a small amount of mild soap and water or mild detergent.
  - 2. Do not use any of the following:
    - a. Steam jets
    - b. Abrasives
    - c. Strong acidic or alkaline detergents, or surface-reactive agents
    - d. Detergents not recommended in writing by the manufacturer
    - e. Do not use any detergent above 77 degrees F
    - f. Organic solvents including but not limited to those containing ester, Ketone, alcohols, aromatic compounds, glycol ether, or halogenated hydrocarbons.
    - g. Metal or hard parts of cleaning equipment must not touch the glass surface
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.



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- C. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

**END OF SECTION**



## SECTION 08 71 00 – DOOR HARDWARE

### PART 1 - GENERAL

#### 1.01 SUMMARY

##### A. Section includes:

1. Mechanical and electrified door hardware for:
  - a. Swinging doors.
  - b. Sliding doors.
  - c. Gates.
2. Electronic access control system components
3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.

##### B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

##### C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
  - a. "Metal Doors and Frames"
  - b. "Flush Wood Doors"
  - c. "Stile and Rail Wood Doors"
  - d. "Interior Aluminum Doors and Frames"
  - e. "Aluminum-Framed Entrances and Storefronts"
  - f. "Stainless Steel Doors and Frames"
  - g. "Special Function Doors"
  - h. "Entrances"
6. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.



## 1.02 REFERENCES

### A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

### B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

### C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

### D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

## 1.03 SUBMITTALS

### A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
  - a. Comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
  - b. Review drawings and Sections from related trades to verify compatibility with specified hardware.
  - c. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

### B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:



- a. Wiring Diagrams: For power, signal, and control wiring and including:
  - 1) Details of interface of electrified door hardware and building safety and security systems.
  - 2) Schematic diagram of systems that interface with electrified door hardware.
  - 3) Point-to-point wiring.
  - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
  - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
  - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
  - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
  - c. Indicate complete designations of each item required for each opening, include:
    - 1) Door Index: door number, heading number, and Architect's hardware set number.
    - 2) Quantity, type, style, function, size, and finish of each hardware item.
    - 3) Name and manufacturer of each item.
    - 4) Fastenings and other pertinent information.
    - 5) Location of each hardware set cross-referenced to indications on Drawings.
    - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
    - 7) Mounting locations for hardware.
    - 8) Door and frame sizes and materials.
    - 9) Degree of door swing and handing.
    - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.
5. Key Schedule:
  - a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
  - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
  - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
  - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
  - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
  - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.



6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door hardware installation.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
  - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
  - b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
  - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
  - b. Catalog pages for each product.
  - c. Factory order acknowledgement numbers (for warranty and service)
  - d. Name, address, and phone number of local representative for each manufacturer.
  - e. Parts list for each product.
  - f. Final approved hardware schedule edited to reflect conditions as installed.
  - g. Final keying schedule
  - h. Copies of floor plans with keying nomenclature
  - i. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
  - j. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit a written report of the results of functional testing and inspection for fire door assemblies, in compliance with NFPA 80.
  - a. Written report to be provided to the Owner and be made available to the Authority Having Jurisdiction (AHJ).
  - b. Report to include the door number for each fire door assembly, door location, door and frame material, fire rating, and summary of deficiencies.
2. Submit a written report of the results of functional testing and inspection for required egress door assemblies, in compliance with NFPA 101.
  - a. Written report to be provided to the Owner and be made available to the Authority Having Jurisdiction (AHJ).
  - b. Report to include the door number for each required egress door assembly, door location, door and frame material, fire rating, and summary of deficiencies.

#### 1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant



(AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.

- a. Warehousing Facilities: In Project's vicinity.
    - b. Scheduling Responsibility: Preparation of door hardware and keying schedules.
    - c. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies like those indicated for this Project.
    - d. Coordination Responsibility: Assist in coordinating installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
      - 1) Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.
  2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
  3. Architectural Hardware Consultant: 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 and meets these requirements:
    - a. For door hardware: DHI certified AHC or DHC.
    - b. Can provide installation and technical data to Architect and other related subcontractors.
    - c. Can inspect and verify components are in working order upon completion of installation.
    - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
  4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
- B. Certifications:
1. Fire-Rated Door Openings:
    - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
    - b. Provide only items of door hardware that are listed products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
  2. Smoke and Draft Control Door Assemblies:
    - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
    - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
  3. Electrified Door Hardware
    - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
  4. Accessibility Requirements:



- a. Comply with governing accessibility regulations cited in “REFERENCES” article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

#### C. Pre-Installation Meetings

##### 1. Keying Conference

- a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
  - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and 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.

##### 2. Pre-installation Conference

- a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- b. Inspect and discuss preparatory work performed by other trades.
- c. Inspect and discuss electrical roughing-in for electrified door hardware.
- d. Review sequence of operation for each type of electrified door hardware.
- e. Review required testing, inspecting, and certifying procedures.
- f. Review questions or concerns related to proper installation and adjustment of door hardware.

##### 3. Electrified Hardware Coordination Conference:

- a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.



- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

#### 1.06 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop 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 existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

#### 1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
  - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
  - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
    - a. Mechanical Warranty
      - 1) Locks
        - a) Schlage L Series: 3 year
      - 2) Exit Devices
        - a) Von Duprin: 3 year
      - 3) Closers
        - a) LCN 4000 Series: 30 year
      - 4) Accessories
        - a) Ives Continuous Hinges: Lifetime



## 1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

### 2.02 MATERIALS

- A. Fasteners
  - 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
  - 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
  - 3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru bolts are required.
  - 4. Install hardware with fasteners provided by hardware manufacturer.
- B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.
  - 1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
  - 2. Use materials which match materials of adjacent modified areas.
  - 3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.
- C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.



1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

## 2.03 HINGES

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer and Product:

- a. Ives 5BB series

### B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
  - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
  - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
  - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
  - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
  - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
  - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
9. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
  - a. Steel Hinges: Steel pins
  - b. Non-Ferrous Hinges: Stainless steel pins
  - c. Out-Swinging Exterior Doors: Non-removable pins
  - d. Out-Swinging Interior Lockable Doors: Non-removable pins
  - e. Interior Non-lockable Doors: Non-rising pins
10. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.



## 2.04 FLUSH BOLTS

### A. Manufacturers:

#### 1. Scheduled Manufacturer:

- a. Ives

### B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

## 2.05 MORTISE LOCKS

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer and Product:

- a. Schlage L9000 series

### B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches. Provide motor based electrified locksets that comply with the following requirements:
  - a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.
  - b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
  - c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a single power supply.
  - d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate "hot levers" in electrically locked applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
  - e. Connections – provide quick-connect Molex system standard.



8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
  - a. Lever Design: 06A.

## 2.06 EXIT DEVICES

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer and Product:

- a. Von Duprin 98/35A series

### B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide smooth touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
7. Provide flush end caps for exit devices.
8. Provide exit devices with manufacturer's approved strikes.
9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.
17. Special Options:
  - a. Provide dogging indicators for visible indication of dogging status.



## 2.01 CYLINDERS

### A. Manufacturer and Product:

1. Scheduled Manufacturer and Product: Schlage Specified.

### B. Requirements:

1. Provide FSIC cores compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cores; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Cores to be Schlage Primus.
3. Nickel silver bottom pins.
4. Replaceable Construction Cores.
  - a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
    - 1) 12 construction change (day) keys.
  - b. Owner or Owner's Representative will replace temporary construction cores with permanent cores.

## 2.02 KEY CONTROL SYSTEM

### A. Manufacturers:

1. Scheduled Manufacturer:
  - a. Telkee

### B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
  - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
  - b. Provide hinged-panel type cabinet for wall mounting.



## 2.03 DOOR CLOSERS

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer and Product:

- a. LCN 4010/4110 series

### B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. Certify surface mounted mechanical closers to meet fifteen million (15,000,000) full load cycles. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter with 11/16-inch (17 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers. When closers are parallel arm mounted, provide closers which mount within 6-inch (152 mm) top rail without use of mounting plate so that closer is not visible through vision panel from pull side.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI/BHMA Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

## 2.04 PROTECTION PLATES

### A. Manufacturers:

#### 1. Scheduled Manufacturer:

- a. Ives

### B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.



## 2.05 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

### A. Manufacturers:

#### 1. Scheduled Manufacturers:

- a. Glynn-Johnson

### B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.
2. Provide friction type at doors without closer and positive type at doors with closer.

## 2.06 DOOR STOPS AND HOLDERS

### A. Manufacturers:

#### 1. Scheduled Manufacturer:

- a. Ives

### B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

## 2.07 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

### A. Manufacturers:

#### 1. Scheduled Manufacturer:

- a. Zero International

### B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.
5. All surface applied seals shall be installed uninterrupted three side of the frame. Provide mounting brackets for the proper mounting of closers, overhead stops, and strikes.



## 2.08 SILENCERS

### A. Manufacturers:

#### 1. Scheduled Manufacturer:

- a. Ives

### B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

## 2.09 FINISHES

### A. Finish: BHMA 626/652 (US26D); except:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)
5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum



## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Prior to installation of hardware, 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. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Where on-site modification of doors and frames is required:
  - 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
  - 2. Field modify and prepare existing doors and frames for new hardware being installed.
  - 3. When modifications are exposed to view, use concealed fasteners, when possible.
  - 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
    - 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: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
    - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

### 3.03 INSTALLATION

- A. 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. Custom Steel Doors and Frames: HMMA 831.
  - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
  - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.



- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- H. Lock Cylinders:
  - 1. Install construction cores to secure building and areas during construction period.
  - 2. Replace construction cores with permanent cores as indicated in keying section.
  - 3. Furnish permanent cores to Owner for installation.
- I. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- J. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- K. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- L. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- M. 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 may impede traffic or present tripping hazard.
- N. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- O. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- P. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.



### 3.04 FIELD QUALITY CONTROL

#### A. Inspection and Testing:

1. Provide functional testing and inspection of fire door assemblies by a qualified person in accordance with NFPA 80.
  - a. Schedule fire door assembly inspection within 90 days of Substantial Completion of the Project.
  - b. Submit a signed, written final report as specified in Paragraph 1.03.E.1.
  - c. Correct all deficiencies and schedule a reinspection of fire door assemblies noted as deficient on the inspection report.
  - d. Inspector to reinspect fire door assemblies after repairs are made.
2. Provide inspection of required egress door assemblies by a qualified person in accordance with NFPA 101.
  - a. Schedule egress door assembly inspection within 90 days of Substantial Completion of the Project for the required openings.
  - b. Submit a signed, written final report as specified in Paragraph 1.03.E.2.
  - c. Correct all deficiencies and schedule a reinspection of egress door assemblies noted as deficient on the inspection report.
  - d. Inspector to reinspect required egress door assemblies after repairs are made.

### 3.05 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 can 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 to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

### 3.06 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.










### 3.07 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

Abbreviation	Name
GLY	Glynn-Johnson Corp
IVE	H.B. Ives
LCN	Lcn Commercial Division
SCH	Schlage Lock Company
VON	Von Duprin
ZER	Zero International Inc

61370 OPT0232437 Version 1  
Hardware Group No. 01








Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	OFFICE W/SIM RETRACT	L9056T 06A L583-363		626	SCH
1	EA	FSIC CORE	23-030 CKC		626	SCH
1	EA	SURFACE CLOSER	4011 ST-1544		693	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		626	IVE
1	EA	WALL STOP	WS406/407CCV		626	IVE
1	EA	GASKETING	488SFBK (THREE SIDES OF THE FRAME)		BK	ZER










Hardware Group No. 02

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	OFFICE W/SIM RETRACT	L9056T 06A L583-363		626	SCH
1	EA	FSIC CORE	23-030 CKC		626	SCH
1	EA	OH STOP	100S		630	GLY
1	EA	SURFACE CLOSER	4011 ST-1544		693	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		626	IVE
1	EA	GASKETING	488SFBK (THREE SIDES OF THE FRAME)		BK	ZER









Hardware Group No. 03

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	MANUAL FLUSH BOLT	FB358		626	IVE
1	EA	DUST PROOF STRIKE	DP2		626	IVE
1	EA	STOREROOM LOCK	L9080T 06A		626	SCH
1	EA	FSIC CORE	23-030 CKC		626	SCH
2	EA	OH STOP	100S		630	GLY
2	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 04

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	FIRE EXIT HARDWARE	98-L-F-2SI-06		626	VON
2	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		626	IVE
1	EA	WALL STOP	WS406/407CCV		626	IVE
1	EA	GASKETING	488SFBK (THREE SIDES OF THE FRAME)		BK	ZER

END OF SECTION



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### 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 glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
  - 1. Door and Window glazing.

#### 1.03 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C1036.
- C. Interspace: Space between lites of an insulating-glass unit.
- D. Sealed Insulating Glass Unit Surface Designations:
  - 1. Surface #1 - Exterior surface of the outer glass lite
  - 2. Surface #2 - Interspace surface of the outer glass lite
  - 3. Surface #3 - Interspace surface of the inner glass lite
  - 4. Surface #4 - Interior surface of the inner glass lite or the interlayer surface of the first layer of laminated glass.
  - 5. Surface #5 - Interlayer surface of the second layer of laminated glass.
  - 6. Surface #6 - Interior surface of the second layer of laminated glass.

#### 1.04 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Design glass, including comprehensive engineering analysis according to ASTM E 1300 by a qualified professional engineer, using the following design criteria:
  - 1. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
    - a. Wind Design Data: As indicated on Drawings.
    - b. Basic Wind Speed: 130 mph.
    - c. Importance Factor: III.
  - 2. Design Snow Loads: As indicated on Drawings.
  - 3. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.
  - 4. Thickness of Patterned Glass: Base design of patterned glass on thickness at thinnest part of the glass.



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- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
  - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

### 1.05 ACTION SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Glass Samples: For each type of the following products; 12 inches (300 mm) square.
  - 1. Fire-resistive glazing products.
  - 2. Insulating glass.
  - 3. Spandrel glass.
- C. Glazing Accessory Samples: For gaskets sealants and colored spacers, in 12-inch (300-mm) lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.
- D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- E. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

### 1.06 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installers manufacturers of insulating-glass units with sputter-coated, low-e coatings glass testing agency and sealant testing agency.
- B. Product Certificates: For glass and glazing products, from manufacturer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for tinted glass coated glass insulating glass glazing sealants and glazing gaskets.
  - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- D. Warranties: Sample of special warranties.

### 1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.
- B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.



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- D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.
- E. Source Limitations for Glass: Obtain tinted float glass coated float glass laminated glass and insulating glass from single source from single manufacturer for each glass type.
- F. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.
- G. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  - 1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
  - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- H. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- I. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F (250 deg C), and the fire-resistance rating in minutes.
- J. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- K. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Install glazing in mockups specified in Section 084113 - Aluminum-Framed Entrances and Storefronts, and Section 084413 - Glazed Aluminum Curtain Walls, as applicable, to match glazing systems required for Project, including glazing methods.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

#### 1.09 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing storefront substrates are wet from rain, frost, condensation, or other causes.



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1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F (4.4 deg C).

### 1.10 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form in which coated-glass manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
  1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty on Laminated Glass: Manufacturer's standard form in which laminated-glass manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
  1. Warranty Period: 10 years from date of Substantial Completion.
- C. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
  1. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.01 GLASS PRODUCTS, GENERAL

- A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
  1. Minimum Glass Thickness for Exterior Lites: Not less than 6.0 mm.
  2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
- B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
- C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
  1. For monolithic-glass lites, properties are based on units with lites 6.0 mm thick.
  2. For laminated-glass lites, properties are based on products of construction indicated.



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3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
4. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
5. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
6. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

### 2.02 GLASS PRODUCTS

- A. Heat-Treated Float Glass: ASTM C1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.
  1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
  2. For uncoated glass, comply with requirements for Condition A.
  3. For coated vision glass, comply with requirements for Condition C (other coated glass).
- B. Pyrolytic-Coated, Self-Cleaning, Low-Maintenance Glass: Clear float glass with a coating on first surface having both photocatalytic and hydrophilic properties that act to loosen dirt and to cause water to sheet evenly over the glass instead of beading.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Cardinal Glass Industries; LoE2 Plus
    - b. Pilkington North America; Activ
    - c. Vitro Architectural Glass (formerly PPG Glass); SunClean
- C. Tinted Float Glass: Class 2, complying with other requirements specified.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide Solargray by PPG Industries or comparable product by one of the following:
    - a. Vitro Architectural Glass.
    - b. Guardian Industries.
  2. Tint Color: Optigray.
  3. Visible Light Transmittance: 76 for Clear glazing and 54 for Gray Tinted glazing percent minimum.
- D. Spandrel Glass: ICD OPACI-COAT-300 Silicone Opacifier coating: ASTM C1048, Kind FT, Condition B, Type I, Quality-Q3, and complying with other requirements specified.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide Vitro Architectural Glass or comparable product by one of the following:
  2. Guardian Glass Products.
  3. Pilkington North America.
  4. Spandrel Coating Color: As selected by the Architect.
- E. Ceramic-Coated Spandrel Glass: ASTM C1048, Kind FT, Condition B, Type I, Quality-Q3, and complying with other requirements specified.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide PPG or comparable product by one of the following:
  2. Tint Color: Optigray
  3. Ceramic Coating Color: Match.



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### 2.03 LAMINATED GLASS

- A. Laminated Glass: ASTM C1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
  - 1. Construction: Laminate glass with polyvinyl butyral interlayer to comply with interlayer manufacturer's written recommendations.
  - 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
  - 3. Interlayer Color: Clear unless otherwise indicated.
- B. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Laminated-Glass Types" Article.

### 2.04 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E2190, and complying with other requirements specified.
  - 1. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
  - 2. Spacer: Manufacturer's standard spacer material and construction.
  - 3. Desiccant: Molecular sieve or silica gel, or blend of both.
- B. Glass: Comply with applicable requirements in "Glass Products" Article and in "Laminated Glass" Article as indicated by designations in "Insulating-Glass Types" Article and in "Insulating-Laminated-Glass Types" Article.

### 2.05 FIRE-PROTECTION-RATED GLAZING

- A. Fire-Protection-Rated Glazing, General: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 for door assemblies.
- B. Laminated Fire-Rated (20 to 180 minutes), High Impact Safety-Rated Ceramic Glass, Ultra-HD technology, 5/16 inch thickness meeting CPSC 16CFR1201 (Cat. I and II) and ANSI Z97.1, withstands thermal shock. 5-year limited warranty. Surface Grade - Standard.
  - 1. Products : Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. TGP Firelite Plus
    - b. or approved equal
- C. Multi-laminate Fire-Rated (45 to 120 minutes), Impact Safety-Rated Fireglass multi-laminate glass with clear intumescent interlayers, interior and exterior use, meets CPSC 16CFR1201 (Cat. I and II) and ANSI Z97.1 and providing protection against radiant and conductive heat transfer as per ASTM E119 and UL 263, withstands thermal shock. 5-year limited warranty. .
  - 1. Products : Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Pilkington Pyrostop: 45-200: 45 min., 3/4 inch thick, STC 40, U-Value - .86
    - b. or approved equal



## 2.06 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
  - 1. Neoprene complying with ASTM C864.
  - 2. EPDM complying with ASTM C864.
  - 3. Silicone complying with ASTM C1115.
  - 4. Thermoplastic polyolefin rubber complying with ASTM C1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene EPDM gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
  - 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

## 2.07 GLAZING SEALANTS

- A. General:
  - 1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
  - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
  - 3. Sealants used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
  - 4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 100/50, Use NT.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Dow Corning Corporation; 790
    - b. GE Advanced Materials - Silicones; SilPruf LM SCS2700
    - c. Pecora Corporation; 890
    - d. Sika Corporation, Construction Products Division; SikaSil-C990
    - e. Tremco Incorporated; Spectrem 1
- C. Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.

## 2.08 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer



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rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
  2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
  2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.09 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
- G. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

## 2.10 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

## 2.11 MONOLITHIC-GLASS TYPES

- A. Glass Type MG- Clear fully tempered float glass.



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1. Thickness: 1/4 inch (6.0 mm).
  2. Provide safety glazing labeling.
- B. Glass Type MG-: Polished wired glass.
1. Thickness: 8.0 mm.
  2. Square (Baroque) wire pattern with applied 7 mil safety film.
  3. Weight: 3.0 lbs. / sq. ft.
  4. STC Rating: STC 28
  5. Manufacturer: SaftiFirst "SuperI-W " or approved equal.
  6. CSPC 16 CFR 1201 Cat. I and II.
- C. Glass Type MG-:
1. Thickness: 0.500 inch.
  2. Mar/UV resistant Lexan MR10 Polycarbonate Glazing with Margard II Coating.
  3. Manufacturer: SABIC GLOBAL TECHNOLOGIES.
  4. 10-year warranty.
  5. Dade County approved.
  6. Temperature Range: -40 degrees F to 180 degrees F.

### 2.12 INTERIOR LAMINATED-GLASS TYPES

- A. Glass Type LG1: Clear laminated glass with two plies of fully tempered float glass with etched surface pattern..
1. Thickness of Each Glass Ply:.118 inch (3.0 mm).
  2. Interlayer Thickness: 0.090 inch (2.29 mm).
  3. Provide safety glazing labeling.
  4. Provide acid-etched banding as indicated on the drawings.
- B. Glass Type LG-: Fire-rated laminated glass
1. Thickness: 8.0 mm.
  2. Provide safety glazing label- CSPC 16 CFR 1201 Cat. I and II.
  3. Manufacturer: TGP Firelite Plus or approved equal.

### 2.13 EXTERIOR INSULATING GLASS TYPES

- A. Glass Type IG-1: Low-E coated, insulating glass.
1. Overall Unit Thickness: 1 inch.
  2. Exterior Glass Lite: 1/4 inch tempered Solarban 60 Low-E (2) StarPhire glass.
  3. Interspace Content: Argon - 1/2 inch.
  4. Indoor Glass Lite: 1/4 inch tempered StarPhire glass.
  5. Visible Light Transmittance: 71 percent minimum.
  6. Winter Nighttime U-Factor: 0.24 maximum.
  7. Solar Heat Gain Coefficient: 0.38 maximum.
- B. Glass Type IGL-2: Low-E coated, insulating glass.
1. Overall Unit Thickness: 1 inch.
  2. Exterior Glass Lite: 1/4 inch tempered Solarban 60 Low-E (2) Optigray glass.
  3. Interspace Content: Argon - 1/2 inch.
  4. Indoor Glass Lite: 1/4 inch tempered StarPhire glass
  5. Visible Light Transmittance: 50 percent minimum.
  6. Winter Nighttime U-Factor: 0.24 maximum.
  7. Solar Heat Gain Coefficient:.23 maximum.



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- C. Glass Type IG-3: Spandrel Glass - ICD OPACI-COAT-300 Silicone Opacifier coating, Low-E, insulating spandrel glass.
  - 1. Overall Unit Thickness: 1 inch.
  - 2. Thickness of Exterior Glass Lite: 1/4 inch fully tempered Solarban 60 (2) SolarGray glass.
  - 3. Interspace Content: Argon - 1/2 inch.
  - 4. Indoor Lite: 1/4 inch fully tempered Clear with ICD OPACI-COAT-300 Silicone Opacifier coating (4).
  - 5. Opacifier Color: ICD 3-4094 - Graylights or as selected by the Architect to match glazing system.
  - 6. Winter Nighttime U-Factor: 0.24 maximum.

### 2.14 EXTERIOR LAMINATED INSULATING GLASS TYPES

- A. Glass Type ILG-1: Low-e-coated, insulating glass.
  - 1. Overall Unit Thickness: 1.34 ( with 0.090 PVB interlayer - 1/4" glass).
  - 2. Exterior Glass Lite: 1/4 inch fully tempered float glass, Solarban 60 Low-E(2) SolarGray.
  - 3. Interspace Content: Argon - 1/2 inch..
  - 4. Indoor Glass Lite: 1/4 inch heat strengthened Clear - 0.090 inch Clear PVB - 1/4 inch heat strengthened Clear.
  - 5. Visible Light Transmittance: 35 percent minimum.
  - 6. Winter Nighttime U-Factor: 0.24 maximum.
  - 7. Solar Heat Gain Coefficient: 0.25 maximum.
  - 8. Provide safety glazing labeling.
- B. Glass Type ILGL-2: Low-e coated, insulating glass.
  - 1. Overall Unit Thickness: 1.31 (with 0.060 PVB interlayer).
  - 2. Exterior Glass Lite: 1/8 inch Clear - 0.060 inch clear PVB -1/8 inch Solarban 60 Low E (4) on Clear.
  - 3. Outdoor Lite: Tinted fully tempered float glass.
  - 4. Interspace Content: Argon - 1/2 inch.
  - 5. Indoor Glass Lite: 1/4 fully tempered float Clear glass.
  - 6. Visible Light Transmittance: 45 percent minimum.
  - 7. Winter Nighttime U-Factor: 0.24 maximum.
  - 8. Solar Heat Gain Coefficient: 0.38 maximum.
- C. Glass Type ILG-3: Spandrel Glass; Low-E, insulating spandrel glass.
  - 1. Overall Unit Thickness: 1.31 (with 0.060 PVB interlayer).
  - 2. Exterior Glass Lite: 1/4 inch fully tempered float glass, Solarban 60 Low-E(2) SolarGray.
  - 3. Interspace Content: Argon - 1/2 inch.
  - 4. Indoor Lite: 1/4 inch heat strengthened Clear with 0.060 clear PVB on 1/4 inch heat strengthened with Ceramic-Coated Spandrel Glass
  - 5. Ceramic Frit Color: Warm Gray
  - 6. Winter Nighttime U-Factor: 0.29 maximum.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:



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1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

### 3.03 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
  1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.



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- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

### 3.04 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.05 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.



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- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

### 3.06 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

### 3.07 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove non-permanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

## END OF SECTION



## PART 1 - GENERAL

### 1.01 SECTION INCLUDES

- A. The work of this Section consists of providing all labor, materials and equipment and services to complete the following terrazzo floor repairs on the building interior, including but not limited to:
  - 1. Cleaning terrazzo floors.
  - 2. Repairing or patching damaged terrazzo.
  - 3. Pouring new terrazzo in areas noted on drawings.
  - 4. Replacing damaged Zinc divider strips
  - 5. Sealing the terrazzo floors.

### 1.02 REFERENCES

- A. Comply with the specifications and recommendations of the NTMA (National Terrazzo and Mosaic Association).
- B. General Service Administrations (GSA) Preservation Note 43, Restoring and Maintaining Terrazzo Flooring
- C. ASTM C150/C150M - Standard Specification for Portland Cement
- D. ASTM C33/C33M - Standard Specification for Concrete Aggregates
- E. ASTM C241 - Standard Test Methods for Abrasion Resistance
- F. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
- G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

### 1.03 JOB CONDITIONS

- A. Quantity and Location: The Contractor and the Architect shall review all of the areas mentioned to confirm quantities and location of terrazzo floor repairs.
- B. In addition to areas noted on Drawings, Contractor shall include an extra 200 s.f. of terrazzo to be installed as directed by the Architect in the field.

### 1.04 QUALITY ASSURANCE

- A. Work shall be performed by a Contractor specializing in the fabrication and repair of terrazzo floors. The Contractor must have a minimum of five (5) years of experience. Contractor must demonstrate three projects similar in scope and type to the required work in the New York region(s).
- B. Mechanics shall be highly skilled in the art and necessary crafts of terrazzo floor repair, with the work of this Section to the highest standard for such work. No allowances will be made for the lack of skill of mechanics.
- C. All work shall be carried out in accordance with the standards of the National Terrazzo and Mosaic Association, Inc., except where indicated in these specifications.



- D. Contractor should be a member of The National Terrazzo and Mosaic Association, Inc., or certified by that organization as qualified to perform the work of this Section in accordance with the specified requirements.

#### 1.05 SUBMITTALS

- A. Submit qualification data and references for firms and persons specified in the "Quality Assurance" Article above to demonstrate their capabilities and experience.
- B. Contractor shall submit a work plan including detailed description of how the work of this Section shall be accomplished. This should include products to be used, methods and equipment for terrazzo floor restoration and associated work.
- C. Provide written descriptions, drawings and diagrams outlining proposed methods and procedures for protection of personnel, the public and the existing construction during the work of this Section.
- D. Submit drawings indicating the type, size, and layout of divider strips and control joints strips and color of floor areas.
- E. Product Literature: The Contractor shall submit copies of the manufacturer's technical data for each product including their recommendations for installation and use. Include test results and certificates that verify the product's compliance with the specification's requirements. One complete set of product literature and MSDS shall be placed in a 3-ring loose-leaf binder and shall be present on the job site at all times for the reference of the Architect.
- F. Samples:
  - 1. Samples of all aggregate including marble chips for new terrazzo.
  - 2. Three (3) samples of each color of replacement terrazzo required.
  - 3. Provide cured samples of terrazzo patching repair mix, not less than 12" square.
  - 4. One (1) 6-inch sample of the replacement divider strip for the joint.
- G. If alternate methods and materials to those specified are proposed for any phase of the restoration work, provide written description. Provide evidence of successful use on comparable projects and demonstrate its effectiveness for use on this project.
- H. Mock-ups: At an area on the site where approved by the Owner, provide a mock-up demonstrating terrazzo floor repairs. The mock-ups may be part of the Work, and may be incorporated into the finished work, when so approved by the Architect. Revise as necessary to secure the Architect's approval. The mock-up panels, when approved by the Architect will be used as the standard for all terrazzo floor repairs as the basis for acceptance or rejection of the Work. Mock-ups are to include:
  - 1. Patching repair sample.
  - 2. Metal divider strip replacements.
  - 3. New panel installation.
  - 4. Cleaning and polishing.

#### 1.06 COORDINATION

- A. Delay grinding, sealing and finishing until heavy trade work is completed and construction traffic through the area is restricted.



## PART 2 - PRODUCTS

### 2.01 CLEANING MATERIALS

- A. Provide a commercially prepared product formulated especially for cleaning terrazzo floors, having a pH of between 7 and 10, free from crystallizing salts or water soluble alkaline salts, biodegradable, and phosphate free.

### 2.02 SEALING MATERIALS

- A. Provide a commercially prepared sealer formulated especially for sealing terrazzo, having a pH between 7 and 10, non-discoloring or yellowing, providing a slip-resistant surface with a flash-point of 95 degrees Fahrenheit minimum in accordance with ASTM D56.

### 2.03 PATCHING MATERIALS

- A. Portland Cement: shall comply with ASTM C150/C150M, Type I, white.
- B. Sand: shall comply with ASTM C33/C33M for fine aggregates.
- C. Marble Chips: Provide in conformance with MTMA standards and with the following attributes:
  - 1. Shall comply with ASTM C241 with HA10 minimum, and with 24-hour absorption rate of not more than 0.75%.
  - 2. Provide chips containing no deleterious or foreign matter, and with dust content less than 1% by weight.
  - 3. Label bags legibly with correct name and size of chips.
  - 4. Colors and gradation of aggregates sizes as required to match original existing intact materials and patterns. Original plans often contain the exact terrazzo mix.
  - 5. Aggregate colors should be matched after cleaning or taken from the interior of core samples depending upon the scope of work.
- D. Colorants: Provide alkali-resistant non-fading color pigments as appropriate to each particular terrazzo mixture required.
- E. Curing Compound: Liquid-membrane-forming compound, ASTM C309, Type I.
- F. Reinforcement: Provide 16 gage, 2 inch by 2 inch galvanized welded wire fabric which complies with ASTM A185.

### 2.04 EQUIPMENT

- A. Plastic sheeting.
- B. Grinding stones: fine grit emery stones manufactured specifically for restorative type grinding and surfacing of terrazzo surfaces (#40 and #80 grit stones).
- C. Power saw.
- D. Hand tools:
  - 1. Trowel
  - 2. Chisel
  - 3. Hand Grinder



- E. Resurfacing Screens: a fine grit screen manufactured specifically for restorative type grinding and resurfacing terrazzo surfaces.

## 2.05 BRASS JOINT STRIPS

- A. Zinc joint strips to match existing in size, shape and color.

## PART 3 - EXECUTION

### 3.01 TEMPORARY PROTECTION

- A. Cover adjacent surfaces and adjacent decorative features with protective sheeting to contain any fragments and dust during removal and preparation and to contain materials during their application.

### 3.02 INSPECTION

- A. The Contractor shall examine substrates and conditions under which this work is to be performed and notify the Construction Manager in writing of conditions detrimental to the proper completion of the work. Do not proceed until unsatisfactory conditions are corrected. Commencement of work indicates that Contractor accepts substrate and conditions.
- B. Correct any conditions that are detrimental to the successful completion of the work. Sequencing of work should be scheduled to ensure that completed work will match existing.
- C. Perform a thorough examination of the existing conditions. Perform any necessary tests on an inconspicuous surface to determine the current conditions and appropriate steps and materials necessary for replication and replacement of select areas of existing terrazzo surface.

### 3.03 PATCHING DAMAGED TERRAZZO

- A. Surface Preparation.
  - 1. Sawcut around the area to be patched. The perimeter of the area to be patched should have vertical sides that are perpendicular to the horizontal surface. Do not feather the edge of the void. If the patch is larger than an inch square, slightly undercut this edge. Remove all loose and deteriorated terrazzo.
  - 2. Clean surface of debris and any obstructing material. Saturate void with water to prevent quick surface drying. Ensure that water penetrates into the surface in order to achieve a proper bond.
  - 3. Apply a cement paste and work into the surface. Do not allow cement paste to dry before placing terrazzo composition.
- B. Application:
  - 1. Mix two parts blended marble chips with one part Portland cement and coloring pigment. Add enough water to make this mix plastic in strict accordance with the manufacturer's specifications.
  - 2. Apply this mixture to the prepared void, making sure it is applied to the wet cement paste preparation layer. Work the patching material into the void ensuring intimate contact to all areas including sides of the void.
  - 3. Seed additional marble chips of the same blend over the patch, as required to establish a uniform coverage.
  - 4. Compact patch, remove all excess water and cement from the surface.



5. Cover the patch with paper or polyethylene sheeting to prevent quick hydration. Cure until topping develops sufficient strength to prevent lifting or pulling of terrazzo chips during grinding.
6. Sand surface with a hand sander or small grinding tool, using fine grit stones to achieve desired finish.
7. Use a #40 or finer grit stone for the initial grinding, exposing the marble chips. Follow with a fine #80 grit stone.
8. Thoroughly rinse surface with clean, clear, potable water.
9. Remove excess rinse water and machine or hand apply grout using identical Portland cement color and pigments as used in topping taking care to fill all voids completely.
10. Cover grouted surface with paper or polyethylene for at least 72 hours.
11. Final polish with a #80 or finer grit stone. Care should be taken to limit grinding and polishing to a small distance beyond the perimeter of the patch.
12. Produce a finished terrazzo surface showing a percentage of marble chips equal to that of the existing terrazzo surface.
13. Seal patch with a penetrating type terrazzo sealer per the SEALING MATERIALS Article.

#### 3.04 TERRAZZO PROPORTIONS

- A. Terrazzo underbed shall be composed of one part Portland cement to four parts sand. Water shall be added to provide workability at as low a slump as possible. Spread to a level ½-inch below the finished surface.
- B. Terrazzo Topping shall be composed of one 94 pound bag of Portland cement per 200 pounds of marble chips and approximately 5 gallons of water. Color pigment shall be added as needed but not to exceed 2 pounds per bag of cement. Water shall be added in sufficient quantity to provide workability at as low a slump as possible in strict accordance with the manufacturer's specifications.

#### 3.05 UNDERBED PLACEMENT

- A. Surfaces of concrete subfloor shall be cleaned and saturated with water in accordance with NTMA Info Guide. Do not treat substrate to receive terrazzo with curing agents or additives which would preclude or inhibit bonding. Excess water shall be removed from the subfloor before slushing and brooming with neat cement paste.
- B. The underbed shall be placed on the concrete subfloor and shall be screeded to an elevation of ½ inch below the finished floor.
- C. Divider strips shall be installed in the semi-plastic underbed.
- D. The underbed shall be firmly troweled along the edges to insure positive anchorage of the divider strips. Expansion type joint strips shall be installed over the subfloor expansion joints and shall extend the full depth of the underbed.

#### 3.06 REPLACEMENT OF DIVIDER TRIPS

- A. Replace missing divider strips to match existing in all respects (material, depth, exposed width and configuration.).
- B. If replacing divider strips in an area where the surrounding terrazzo is sound, set the strips in epoxy.



### 3.07 SETTING DIVIDER STRIPS

- A. Set in accordance with the layout indicated in the approved shop drawings while the underbed is still plastic.
- B. Set strips in straight lines and to the proper level to ensure that tops of the strips will show uniformly after completing grinding and finishing operations. Fit joints and intersections tight.

### 3.08 PLACING TERRAZZO TOPPING

- A. The underbed shall be slushed and broomed in accordance with NTMA Info Guide with neat cement paste of the same color as required for the topping.
- B. The topping shall be placed in sections formed by divider strips and shall be troweled level with the top of the strips.
- C. The troweled surface shall be seeded with chips in the same color proportions as contained in the terrazzo mix, troweled and rolled with heavy rollers until excess water has been extracted.
- D. The terrazzo shall be troweled to a uniform surface disclosing the lines of the divider strips.

### 3.09 CURING

- A. The terrazzo shall be cured until the topping develops sufficient strength to prevent lifting or pulling of the terrazzo during grinding.
- B. Keep the completed terrazzo continuously moist and free of traffic during the curing period.
- C. Cure by covering with a liquid membrane-forming compound, sheet materials, wet sand, or sprinkling with water.

### 3.10 FINISHING

- A. Finishing shall be in accordance with the NTMA Info Guide.

### 3.11 ROUGH GRINDING

- A. After the topping has cured, the terrazzo shall be machine ground using the wet method, to a true even surface using No. 24 or finer grit followed by No. 8 grit or finer grit stone. Finished surface shall not vary more by more than 1/4-inch in 10 feet.

### 3.12 GROUTING

- A. After rough grinding, the floor shall be rinsed with clean water.
- B. After removing excess rinse water, the floor shall be grouted using identical Portland cement, color and pigments as used in the topping, taking care to fill all voids.
- C. After the grout has attained its initial set, the surface shall be cured for a minimum of 72 hours.



### 3.13 FINE GRINDING

- A. After the grout has cured, the surface shall be ground with fine grit stones until all grout is removed from the surface.

### 3.14 CLEANING AND SEALING

- A. The terrazzo shall be washed with a neutral cleaner and, where required, shall be cleaned with a fine abrasive to remove stains and cement smears.
- B. Ensure the surface to be sealed is dry, and free of dirt and debris.
- C. Apply the sealer according to the manufacturer's recommendations.
- D. Ensure that an even, streak-free finish is achieved.
- E. Allow the sealer to cure as per the manufacturer's recommendations prior to receiving traffic.

### 3.15 ADJUSTING / CLEANING:

- A. Upon completion of all other work of this Section, inspect all terrazzo surfaces and correct conditions which do not meet the specified requirements.
- B. Remove protective materials from adjacent surfaces.
- C. Upon completion of the sealing process, provide adequate protection to prevent damage to the finished terrazzo surfaces until final acceptance of the Work.
- D. Clean the work of this Section in accordance with recommendations of the manufacturers of the materials used.
- E. Provide terrazzo surfaces free from cracks, chips and other surface defects.

### 3.16 PROTECTION

- A. The terrazzo work shall be covered and protected from damage until the completion of the work of all other trades.

## **END OF SECTION**



## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Agreement, including General and Supplementary Conditions, and Division 01 of the Project Manual, apply to work of this Section.

### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Non-load bearing steel framing members for gypsum board walls, soffits and ceilings.
    - a. Custom curved tracks and framing for curved surfaces.
  - 2. Gypsum board assemblies attached to steel framing.
  - 3. Tile backing panels.
  - 4. Gypsum soffits.
  - 5. Gypsum board ceilings.
  - 6. Shaft wall assemblies.
  - 7. Resilient channels and metal furring.
  - 8. Suspension systems for interior gypsum ceilings and soffits.
  - 9. Control Joints in gypsum board ceiling and wall assemblies.
  - 10. Joint treatments, tapes, compounds and finishing.
  - 11. Levels of finish for gypsum board surfaces
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Section 054000 - Cold Formed Metal Framing
  - 2. Section 061000 - Rough Carpentry for solid wood blocking built into gypsum board assemblies
  - 3. Section 061643 - Gypsum sheathing for exterior building sheathing.
  - 4. Section 072116 - Blanket Insulation for thermal and sound attenuation insulation installed in assemblies that incorporate gypsum board.
  - 5. Section 072129 - Sprayed Insulation for foam insulation installed in assemblies that incorporate gypsum board and/or non-load bearing framing.
  - 6. Section 078400 - Firestopping for firestopping systems and fire-resistive-rated joint sealants.
  - 7. Section 078600 - Smoke Barrier Systems for through penetrations smoke barrier systems.
  - 8. Section 095100 - Acoustical Ceiling suspension assemblies for suspension systems for gypsum ceilings.
  - 9. Section 099100 - Painting for GWB primers and finish painting.

### 1.03 STANDARDS

- A. All work of this section shall conform to industry standards and/or manufacturer's recommendations.
- B. ASTM C11 "Standard Terminology Relating to Gypsum and Related Building Materials and Systems".
- C. ASTM C475/C475M "Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board".
- D. ASTM C645 "Standard Specification for Nonstructural Steel Framing Members".



- E. ASTM C754 "Standard Specification for Installation of Steel Framing Members To Receive Screw-Attached Gypsum Board, Backing Board, or Water-Resistant Backing Board".
- F. ASTM C840 "Standard Specification for Application and Finishing of Gypsum Board".
- G. ASTM C954 "Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness".
- H. ASTM C1047 "Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base".
- I. ASTM C1396/C1396M "Standard Specification for Gypsum Board".
- J. GA-216 "Recommended Specifications for the Application and Finishing of Gypsum Board".
- K. GA-253 "Application of Gypsum Board to Form Curved Surfaces".
- L. Recommended Levels of Gypsum Board Finish" published jointly by AWCI, CISCA, GA and PDCA.
- M. Gypsum Board Construction Technology: Refer to ASTM C11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.

#### 1.04 TERMINOLOGY

- A. The terms "drywall", "GWB", "gypsum board", "gypsum wallboard", and "sheetrock" are synonymous.

#### 1.05 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide interior non-load-bearing metal framing capable of withstanding design loads within limits and under conditions indicated.
  - 1. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
    - a. Interior Framing Systems:
      - 1) Maximum Deflection:  $L/240$  at 5 psf, stud spacing at 16 inches o.c.
  - 2. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 129° F.
  - 3. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
    - a. Upward and downward movement of  $\frac{3}{4}$  inch.
- B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions".
  - 1. Provide interior framing systems sized to accommodate maximum deflection using limiting heights of metal studs without contribution of gypsum wallboard (non-composite).



- C. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- D. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

#### 1.06 SUBMITTALS

- A. Pursuant to Section 013300 - Submittal Procedures.
- B. Pursuant to Section 016000 - Product Requirements
- C. Submit manufacturers' product information, specifications, and installation instructions for the specified products including, GWB, joint compounds, fasteners, trim, control joints, joint reinforcing, metal furring members, metal studs, tracks, runners, bridging, resilient channels, steel grounds, and all related accessories.
- D. Test Reports: For all stud framing products that do not comply with ASTM C645 or C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.
- E. LEED Submittals:
  - 1. Credit MR 4.1 and MR 4.2: Provide documentation indicating how the requirements of Credit MR 4.1 and MR 4.2 will be met.
    - a. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
    - b. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
  - 2. Product Certifications for Credit MR 5: For products and materials required to comply with requirements for regional materials indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.
  - 3. Credit IEQ 4.1: Provide manufacturer's product data for installation adhesives used to laminate gypsum board panels to substrate, including printed statement of VOC content.

#### 1.07 QUALITY ASSURANCE

- A. Experienced workers familiar with the work and according to manufacturer's recommendations and/or industry standards shall perform all work of this section.
- B. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer, unless otherwise indicated.
- C. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.



- D. Single-Source Responsibility for Finishing Materials: Obtain finishing materials either from the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.
- E. Fire-Test-Response Characteristics: Where fire-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with the following requirements:
  - 1. Fire Resistance Ratings: As indicated by reference to GA File Numbers in GA-600 "Fire Resistance Design Manual" or design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 2. Gypsum board assemblies indicated are identical to assemblies tested for fire resistance according to ASTM E119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
  - 3. Deflection and Firestop Track: Top runner provided in fire-resistance-rated assemblies indicated is labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

#### 1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Pursuant to manufacturers published instructions.
- B. Protect against moisture exposure, condensation, direct sunlight, construction damage and other potential causes of damage.
- C. Neatly stack gypsum panels flat to prevent sagging.
- D. Do not install GWB that is wet, that is moisture damaged, and/or that is mold damaged.

#### 1.09 ENVIRONMENTAL CONDITIONS

- A. General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C840 and with gypsum board manufacturer's written recommendations, whichever is more stringent.
- B. Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.
- C. Provide adequate ventilation to carry off excess moisture. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.
- D. Do not install gypsum board that is wet, those that are moisture damaged, and those that are mold damaged.

#### 1.10 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.



- B. Rated or Tested Assemblies: As specified under the individual assembly description and shown in the drawings.
- C. Non-rated Assemblies: As specified under the individual assembly description and shown in the drawings.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to the following:
  - 1. Gypsum Board and Related Products
    - a. CertainTeed
    - b. G-P Gypsum Corp.
    - c. National Gypsum Company
    - d. USG Corporation.
  - 2. Steel Framing and Furring
    - a. ClarkDietrich Building Systems
    - b. National Gypsum Company
    - c. United States Gypsum Company
    - d. Marino/Ware: a Division of Ware Industries, Inc.

### 2.02 MATERIALS

- A. Runners: "U" shaped steel of same type, gage, and finish as studs with web depth compatible with studs and designed to hold studs temporarily in place at top and bottom by friction.
  - 1. Top Runners (Track): Where framing extends to overhead structural supports and/or decking, install to produce joints at top of framing systems that prevent axial loading of finished assemblies. In fire rated walls use Firestop Deflection Track.
- B. Steel Stud Framing:
  - 1. Channel shaped with return leg.
  - 2. Non-load bearing: ASTM C 645.
  - 3. Hot dip galvanized:
- C. Metal/Rigid Furring Channel:
  - 1. Product: ASTM C645.
  - 2. Hot dip galvanized:
- D. Resilient Channel:
  - 1. Product: Sound Transmission Resilient Channel.
  - 2. Corrosion-resistant steel channel.
- E. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
  - 2. ClarkDietrich Building Systems; BlazeFrame.
  - 3. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Posi Clips.



4. Metal-lite, Inc.; The System.
  5. Sliptrack Systems; SLP-TRK.
- F. Deflection Track:
1. Double track condition.
  2. Oversized outer track (2" deep minimum).
  3. Long leg inside track.
  4. Same gage or heavier than studs.
  5. Hot dip galvanized.
- G. Bridging
1. Cold-rolled Channel Bridging
    - a. 16 Gauge (minimum) screwed to each stud with a clip angle not less than 1-1/2" x 1-1/2", 16 gauge, galvanized steel. Clip angle to be screwed to bridging at each stud. Use 3-3/8" wide clips for 3-5/8" studs and 5-3/4" wide clips for 6" studs. Two screws into bridging and two screws into stud.
- H. Hat-Shaped Rigid Furring Channels: ASTM C645
1. Minimum Base-Metal Thickness: 20 gauge.
  2. Depth: 7/8 inch, 1-1/2 inches as indicated on the Contract Drawings.
- I. Resilient Furring Channels: 1/2-inch deep, 20 gauge galvanized steel sheet members designed to reduce sound transmission.
1. Configuration: Asymmetrical, single leg with 1-1/2" screw flange.
- J. Z-Shaped Furring: With non-slotted web, face flange of 1-1/4 inches, wall attachment flange of 3/4 inch, minimum uncoated-metal thickness of 16 gauge unless noted otherwise and depth required to fit insulation thickness indicated.
- K. Blocking
1. Solid wood - See Section 061000 - Rough Carpentry
- L. Column and beam clip
1. "The Claw" manufactured by Claw International, 139 Parkview Drive, Lakeview, AR 72642 Phone: 870-431-5654 [www.BEAMCLIPS.com](http://www.BEAMCLIPS.com) or Architect Approved equivalent.
- M. Fasteners:
1. Steel drill screws; for fastening gypsum boards to steel members from 0.033 to 0.112 in. thick: ASTM C954.
  2. Steel drill screws:
    - a. Type S: for fastening gypsum board to steel framing members.
    - b. Type W: for fastening gypsum boards to wood members.
    - c. Type G: for fastening gypsum board to gypsum board.
  3. Concrete anchors: Sized for installation loads imposed.
    - a. Power driven.
    - b. Pre-drilled expansion type.
    - c. Self-drilling expansion type.
- N. Gypsum Wall Board:
1. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.



2. Size: Provide maximum lengths and widths available that will minimize joints in each area, correspond with support system indicated, and be efficient in unusable off-cuts and waste.
3. Gypsum Board (GWB):
  - a. Type 'X' unless noted otherwise.
  - b. Thickness: 5/8" GWB unless noted otherwise.
4. Curved Gypsum Board
  - a. Thickness: 1/4" GWB, provide 2 layers
  - b. Use wet method to form curves of less than 10' radius.
5. Cementitious Board:
  - a. Provide on all surfaces to receive tile finish in shower area only.
  - b. Thickness: 5/8"
6. Gypsum Soffit Board
  - a. Description: Specially formulated core to resist sag and moisture
  - b. Thickness - 5/8" unless noted otherwise
  - c. Use:
    - 1) Provide on all exterior soffit/ceiling locations
    - 2) Provide on interior soffit locations where noted on Drawings
7. Abuse Resistant Type
  - a. Manufactured to produce greater resistance to surface indentation, through-penetration (impact resistance), and abrasion than standard, regular-type and Type X gypsum board.
  - b. Core: 5/8", Type X
  - c. Long Edges: Tapered.
  - d. Abuse-Resistant Performance:
    - 1) Surface Abrasion: ASTM D 4977, 0.015" at 50 rubs
    - 2) Surface Indentation: ASTM D 5420, 0.15" maximum
    - 3) Soft-Body impact: ASTM E 695, surface failure at 150 ft-lbs. minimum.
  - e. Products:
    - 1) Georgia Pacific DensArmor Plus® Fireguard® Abuse-Resistant Interior Gypsum Panel.
    - 2) Gold Bond® Hi-Abuse® XP® Gypsum Board
    - 3) Sheetrock® Brand Mold Tough® VHI Firecode X Panels
    - 4) Certainteed Extreme Abuse Resistant Gypsum Board with M2 Tech® Type X.
8. Shaftwall
  - a. Liner Boards:
    - 1) ASTM C442, Type SLX
    - 2) Edges: Beveled
    - 3) Thickness: 1"
    - 4) Acceptable Product: Sheetrock gypsum liner panels by USG or Architect approved equivalent meeting the required ratings.
  - b. Face Boards:
    - 1) ASTM C1396 (Section 5), type X
    - 2) Thickness: 5/8"
9. Tile Backing Panels
  - a. Provide on all walls to receive ceramic tile except showers.
  - b. Glass-mat, Water-Resistant Backing Board
    - 1) Complying with ASTM C 1178.
    - 2) Core: 5/8", Type X
    - 3) Products:
      - (a) DensShield® Tile Backer by Georgia Pacific Gypsum.
      - (b) FIBEROCK® Tile Backerboard by USG



- O. Gypsum Board Accessories:
  - 1. All accessories must be taped.
  - 2. Galvanized steel; ASTM C1047
  - 3. Corner bead: Solid flange.
  - 4. Expansion (control) joint, with removable strip.
  - 5. U-bead.
  - 6. L-bead:
    - a. Solid flange.
    - b. Tear away L-bead at window applications.
  - 7. LK-bead: Solid flange.
  - 8. LC-bead: Solid flange.
  - 9. Edge trim: Tapeable J-bead.
- P. Joint Finishing Materials: ASTM C475
  - 1. Joint reinforcing tape: ASTM C475
    - a. Size: not less than 1-7/8 in. or more than 2-1/4 in.
    - b. Thickness: Not more than 0.012 in.
    - c. Tensile strength: Not less than 30 lb./in. when tested pursuant to ASTM C474.
    - d. Dimensional stability: Expansion no more than 0.40% lengthwise and not more than 2.5% crosswise when tested pursuant to ASTM C474.
  - 2. Glass fiber joint reinforcement tape: Open weave tape; ASTM C475.
  - 3. Joint compound: Provide one or more of following pursuant to ASTM C475:
    - a. Ready-mix or dry taping or bedding compound.
    - b. Ready-mix or dry finishing or topping compound.
    - c. Ready-mix or dry all-purpose compound.
    - d. Compounds selected to be compatible.

## 2.03 STEEL FRAMED PARTITION: (NON-LOAD BEARING)

- A. Fire Rating: Per Drawings.
- B. Steel Framing:
  - 1. Runners, floor and ceiling:
    - a. Size: As shown on the drawings.
    - b. Material: 20 gage MSG (minimum) galvanized standard steel track or 33 mil (50 ksi) if using ViiperStud®, ProSTUD®, or other proprietary stud system unless noted otherwise on the Drawings.
    - c. Attachment to Floor and Ceiling: 16 in. o.c., maximum.
  - 2. Steel Studs:
    - a. Size: As shown on the drawings.
    - b. Material: 20 gage MSG (minimum) standard, galvanized steel stud, 33 mil (33 ksi) ViperStud®, 33 mil (33ksi) ProSTUD®, 33 mil (33 ksi) other proprietary stud unless noted otherwise on the Drawings.
    - c. Spacing: As shown on the Drawings.
- C. Bridging:
  - 1. U-Channel
    - a. 16 gauge (minimum).
    - b. 4'-0" o.c. vertically (maximum). Screwed to each stud. Provide bridging within 12" of the stud end at deflection top track.
  - 2. Blocking



- a. FR Solid Wood - See Section 061000 - Rough Carpentry.
- D. Boards, Both Sides:
  - 1. Layers: As required for fire rating of wall assembly:
    - a. Edge: Tapered.
    - b. Type: As listed in 2.02 N.
    - c. Orientation: Parallel with studs or perpendicular to studs.
- E. Fasteners: Steel drill screws.

#### 2.04 STEEL FRAMED PARTITIONS (LOAD BEARING FIRE RATED ASSEMBLY)

- A. Fire Rating: Per drawings.
- B. Steel Framing:
  - 1. Runners, floor and ceiling:
    - a. Size: As shown on the Drawings.
    - b. Material: As shown on Drawings and in Section 054000 - Cold Formed Metal Framing.
    - c. Attachment to Floor and Ceiling: 16" o.c., maximum.
  - 2. Steel Studs:
    - a. Size: As shown on the Drawings.
    - b. Material: As shown on Drawings and Section 054000 - Cold Formed Metal Framing.
    - c. Spacing: As shown on the Drawings.
- C. Bridging:
  - 1. U-Channel
    - a. 14 gauge (minimum).
    - b. 4'-0" o.c. vertically (maximum). Screwed to each stud. Provide bridging within 12" of the stud end at deflection top track.
  - 2. Blocking
    - a. FR Solid Wood - See Section 061000 - Rough Carpentry.
- D. Boards, Both Sides:
  - 1. Layers: As required for fire rating of wall assembly.
  - 2. Material:
    - a. Interior wall assembly:
      - 1) Edge: Tapered.
      - 2) Type: As listed in 2.02 I.
      - 3) Orientation: Parallel with studs or perpendicular to studs.
    - b. Exterior wall assembly:
      - 1) Interior face of wall assembly:
        - (a) Edge: Tapered.
        - (b) Type: As listed in 2.02 I.
        - (c) Orientation: Parallel with studs or perpendicular to studs.
      - 2) Exterior face of wall assembly
        - (a) See Section 061643 - Gypsum Sheathing
- E. Fasteners: Steel drill screws



## 2.05 STEEL FRAMED PARTITIONS (LOAD BEARING UNRATED ASSEMBLY)

- A. Rating: None
- B. Steel Framing:
  - 1. Runners, floor and ceiling:
    - a. Size: As shown on the drawings.
    - b. Material: As shown on drawing and spec Section 054000 - Cold Formed Metal Framing.
    - c. Attachment to Floor and Ceiling: 16" o.c., maximum.
  - 2. Steel Studs:
    - a. Size: As shown on the drawings.
    - b. Material: As shown on drawing and Section 054000 - Cold Formed Metal Framing.
    - c. Spacing: As shown on the Drawings
- C. Bridging:
  - 1. U-Channel
    - a. 14 gauge (minimum).
    - b. 4'-0" o.c. vertically (maximum). Screwed to each stud. Provide bridging within 12" of the stud end at deflection top track.
  - 2. Blocking
    - a. FR Solid Wood - See Section 061000 - Rough Carpentry.
- D. Boards, Both Sides:
  - 1. Layers: Single, face layer only.
  - 2. Material:
    - a. Interior wall assembly:
      - 1) Type: As listed in 2.02 N
      - 2) Edge: Tapered.
      - 3) Orientation: Parallel with studs or perpendicular to studs.
    - b. Exterior wall assembly:
      - 1) Interior face of wall assembly:
        - (a) Type: As listed in 2.02 N.
        - (b) Edge: Tapered.
        - (c) Orientation: Parallel with studs or perpendicular to studs.
      - 2) Exterior face of wall assembly
        - (a) See Section 061643 - Gypsum Sheathing.
  - 3. Fasteners: Steel drill screws

## 2.06 FURRED ASSEMBLY

- A. Rating: None.
- B. Metal/Rigid Furring Channel:
  - 1. Orientation: Installed vertically.
  - 2. Type: DWC.
  - 3. Depth: 7/8" or 1 1/2" in.
  - 4. Gage: 20.
  - 5. Finish: Galvanized, G60.
  - 6. Substrate Attachment:



- a. Direct Method: Fasten alternately through both flanges directly to wall substrate at 24 in. o.c., maximum.
  - b. Fasteners to substrate: Steel power driven fasteners.
- C. Metal Furring Stud:
  - 1. Orientation: Installed vertically.
  - 2. Type: DWS.
  - 3. Depth: 1 5/8".
  - 4. Gage: 20
  - 5. Finish: Galvanized, G60.
  - 6. Substrate Attachment:
    - a. No attachment to substrate. Furring studs and GWB are an independent system when built tight to substrate.
- D. Boards and Sheathing:
  - 1. Layers: Single, face layer only.
  - 2. Face layer:
    - a. Type: As listed in 2.02 N.
    - b. Edge: Tapered.
    - c. Orientation: Parallel with, or perpendicular to, framing.
- E. Fasteners: Steel drill screws.

## 2.07 STEEL FRAMED NON-LOAD BEARING SOFFIT, FASCIA, AND EXTERIOR SHEATHING

- A. Rating: None.
- B. Installation Type: Braced.
- C. Steel Framing:
  - 1. Runners, floor and ceiling:
    - a. Size: As shown on the Drawings.
    - b. Material: 20 gage MSG (minimum) galvanized steel track or 33 mil (50 ksi) if using ViiperStud®, ProSTUD®, or other proprietary stud system unless noted otherwise on the Drawings.
    - c. Attachment to substrate: steel drill screws at 24-in. o.c., maximum.
  - 2. Steel Studs:
    - a. Size: As shown on the Drawings.
    - b. Material: 20 gage MSG (minimum) standard, galvanized steel stud, 33 mil (33 ksi) ViperStud®, 33 mil (33ksi) ProSTUD®, 33 mil (33 ksi) other proprietary stud unless noted otherwise on the Drawings.
    - c. Spacing: As shown on the Drawings.
- D. Diagonal Bracing: Use studs or runners.
- E. Boards:
  - 1. Layers: Single, face layer only.
  - 2. Material:
    - a. Interior assembly:
      - 1) Gypsum soffit board
      - 2) Edge: Tapered.
      - 3) Orientation: Parallel with studs or perpendicular to studs.



- b. Exterior assembly:
  - 1) See Section 061643 - Gypsum Sheathing.

F. Fasteners: Steel drill screws.

## 2.08 SUSPENDED GYPSUM BOARD CEILING GRID SYSTEM

- A. Rating: None.
- B. Furring ceiling assembly Number 640 as manufactured by Chicago Metallic 1-800-323-7164 or Architects approved equal.
  - 1. Orientation: Installed perpendicular to ceiling assembly.
  - 2. Main Runner 640-C.
  - 3. Furring Channel 634-C.
  - 4. Furring Tee 644-C.
  - 5. Cross Tee 659-C.
  - 6. Perimeter Trim
  - 7. Infinity D 4" high perimeter trim 044715.00
- C. Boards and Sheathing:
  - 1. Layers: Single, face layer only.
  - 2. Face layer:
    - a. Type: As listed in 2.02 N.
    - b. Edge: Tapered.
    - c. Thickness: As shown on the drawings.
    - d. Orientation: Parallel with, or perpendicular to, framing.
- D. Fasteners: Steel drill screws.

## 2.09 FURRING FOR GYPSUM BOARD CEILING ATTACHED TO WOOD TRUSSES

- A. Resilient Furring Channel (20-gauge, single leg) mounted perpendicular to bottom chord of truss at 16" o.c. maximum.
- B. Rating: One (1) hour or as noted on the Drawings.

## 2.10 FURRING FOR BOARD INSULATION

- A. "Z" Furring Channel, 16 gauge, Galvanized G40EQ Coating, profile depth to match insulation thickness.
- B. To be installed in vertical configuration only, 16" on center unless noted otherwise.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.



### 3.02 PREPARATION

- A. Ceiling Anchorage: Coordinate ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorage to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

### 3.03 INSTALLATION

- A. Install Pursuant to: Manufacturer's published instructions. Comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation.
- B. Install supplementary framing, and FR solid wood blocking to support fixtures, equipment services, heavy trim, casework, TV mounts, projection screens, white boards, bulletin boards, lockers, hand rails, grab bars, toilet accessories, furnishings, or similar construction including Owner furnished items requiring attachment.
- C. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- D. Install bridging at 4'-0" o.c. vertically for full length of wall. If wall has a top deflection track, install an additional row of bridging within 12" of the top end of the studs. Install bridging prior to electrical conduit, piping and other utility installation within the wall or passing thru the wall to avoid conflicts. If bridging can not run full length of wall due to obstruction, continue bridging above or below obstruction overlapping one full stud cavity of main bridging run. Do not exceed 2 feet vertical between offset bridging runs and primary bridging run.
- E. Install bracing at terminations in assemblies.
- F. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.
- G. Runner Installation:
  - 1. Attach steel runners at floor and ceiling to structural elements with suitable fasteners located 2 in. from each end and spaced 16 in. o.c., maximum.
- H. Steel Stud Installation:
  - 1. Position studs vertically, with open side facing in the same direction, engaging floor and ceiling runners, and spaced pursuant to specific partition description. Trade holes (knockouts) shall not be located within 10 inches of the end of the stud. When necessary, splice studs with 8 in. nested lap and two positive attachments per stud flange. Place studs in direct contact with all door frame jambs, abutting partitions, partition corners, and existing construction elements. Where studs are installed directly against exterior walls and a possibility of water penetration through walls exists, install asphalt felt strips between studs and wall surfaces.
  - 2. Anchor both flanges of all studs to ceiling (unless it is deflection track) and floor runner or track flanges as specified under specific partition description, or, if silent, with metal lock fastener tool, or 3/8 in. Type S or Type S-12 steel drill screw. Securely anchor studs to jamb and head anchors of door or borrowed-light frames by bolt or screw attachment. Over metal door and borrowed-light frames, place horizontally a cut-to-length section of runner or track, with a web-flange bend at each end, and secure to strut-studs with 2



screws in each bent web. Position a cut-to-length stud (extending to ceiling runner or track) at vertical board joints over door frame header.

- a. Install two studs at each jamb unless otherwise indicated.
- b. Install cripple studs at head adjacent to each jamb stud, with a maximum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
- c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

I. Metal/Rigid Furring Channels Erection:

1. Direct attachment: Attach furring channels in a vertical position directly to interior concrete or masonry surface with appropriate anchors and fasteners staggered 16 in. o.c. on opposite flanges. When there is a possibility of moisture penetration through walls, install asphalt felt protection strip between furring channel and wall.

J. Soffit and Fascia Erection:

1. Fasten runners to concrete or masonry substrate with appropriate fasteners spaced 16 in. o.c., maximum. Fasten runners to steel studs used as a substrate used as a substrate with steel drill screws.
2. Fasten steel studs to runners and other steel studs with steel drill screws.
3. Install steel stud diagonal bracing, if necessary; fasten with steel drill screws.

K. Gypsum Board Erection:

1. Clean stud and furring cavities of all construction debris and vacuum clean all track sections prior to installing GWB.
2. Apply gypsum boards pursuant to specific partition description. Position all edges centered over studs for parallel application; all ends centered over studs for perpendicular application. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together.
3. Stagger vertical board joints from joints in adjacent layer and from joints on opposite side of studs. Stagger horizontal joints 1 stud spacing from boards directly above and below, from joints in adjacent layer, and from joints on opposite side of studs. Locate screws 1/2 in. from board edges or ends.
4. Fit gypsum panels around ducts, pipes, and conduits.
5. Where partitions intersect structural members and/or decking projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members and decking flutes; allow 1/4"-3/8" wide joints to install sealant or firestopping.
6. For single-layer parallel application of gypsum boards, space screws pursuant to specific partition description in field of boards and along vertical abutting edges. For single-layer perpendicular board application, space screws pursuant to specific partition description in field and along abutting end joints.

L. For single layer application erect and fasten gypsum boards pursuant to GA-216.

M. For double layer application erect and fasten gypsum boards pursuant to GA-216.

N. For exterior gypsum boards, erect pursuant to GA-216, and fasten at 6" o.c. along panel edge locations and 12" o.c. field locations with 1 1/4" S #6 screws.

O. Furring Installation for Suspended Gypsum Board Ceiling.

1. Install per manufactures instructions, 16" o.c. maximum spacing.

P. All joints and screw heads in GWB construction not exposed to view shall be fire taped and finished to a minimum AWCI Level 2 finish.



### 3.04 ACCESSORY APPLICATION

- A. Corner Bead:
  - 1. Reinforce all vertical and horizontal exterior corners with corner bead fastened by crimping at 6" o.c. on both flanges along entire length of bead. If framing is wood, apply screws at 9" o.c. both flanges along entire length of bed in addition to crimping.
- B. Edge Trim:
  - 1. Where assembly terminates against masonry or other dissimilar material, apply tapeable metal trim over board edge and fasten with 9/16 in. galvanized staples 9" o.c.
- C. Opening Trim:
  - 1. Provide and attach with screws 9" o.c. special J-type (semi-finishing) zinc-alloy edge trim at all exposed edges of exterior gypsum board that are not concealed by applied moldings.
  - 2. Provide and attach with screws 9" o.c. special J-type plastic edge trim at all exposed edges of exterior gypsum board that are not concealed by applied moldings.
- D. Control Joints:
  - 1. Provide control joint units, of either metal or PVC at one side of door frame extending from door frame head upward to top track and/or window unit extending from window jamb upward and downward at a maximum spacing of 24' o.c. of straight wall and for straight wall sections longer than 24' without a door or window provide full height control joint extending from door frame head upward to top track and elsewhere, where control joints are indicated.
  - 2. Control joints shall be provided in gypsum board ceilings not more than 30'-0" o.c. in each direction and at junction of gypsum board partitions with walls or partitions of other finish materials, and at "T", "U" and "I" shaped areas.
  - 3. Each side of a control joint must be independently supported.
  - 4. Provide acoustical sealant at control joints as recommended by Drywall System manufacturer.
  - 5. In fire rated assemblies, control joints shall be backed as required to maintain rating of wall or ceiling.
  - 6. Where gypsum board is vertically continuous, as at stairwells, provide control joints at each floor level.

### 3.05 CONTROL JOINT INSTALLATION

- A. Attach control joint with screws or Architect approved substitution, spaced not over 6 in. apart in each flange. Cut end joints square and align for neat fit. Remove protective tape when joint treatment is completed.

### 3.06 FASTENER APPLICATION

- A. Drywall Screws:
  - 1. Power-drive with an electric screwdriver so screw heads provide a slight depression below surface of gypsum boards without breaking face paper. Do not drive screws closer than 3/8 in. from edges and ends of gypsum boards.

### 3.07 PRE-FILL APPLICATION

- A. Use ready-mix or field mix dry taping or bedding compound pursuant to directions on container. Do not over mix, nor use extremely cold water or cold joint compound.



- B. Pre-fill all "V" grooves formed by abutting tapered eased edges of gypsum board with taping or bedding compound, or Architect approved substitution, using a flexible 5 in. or 6 in. joint finishing knife or specialty pre-fill tool. Fill "V" joint flush and wipe off excess compound beyond "V" groove, leaving a clear depression to receive tape. Allow pre-fill to harden prior to next application, taping, or embedding coat.

### 3.08 JOINT TREATMENT APPLICATION

- A. Mix joint compound pursuant to manufacturer's published instructions.
- B. Apply taping, embedding, or ready-mixed all-purpose compound in a thin uniform layer to all joints, angles, finishing beads, trim and control joints. Immediately apply reinforcing tape centered over joint and seated into compound. Sufficient compound, approximately 1/64 in. to 1/32 in., must remain on tape to provide proper bond. Follow immediately with a thin skim coat to embed tape, but not to function as a second coat. Fold and embed tape properly in all interior angles to provide a true angle. Tape or embedding coat must be thoroughly dry prior to application of second coat. Exception: Some joint compounds need only to have hardened prior to application of next coat. Refer to instructions on container.
- C. Spread finish coat evenly over and extend at least 2 in. beyond second coat on all joints and feather to a smooth, uniform finish. Over tapered edges, do not allow finished joint to protrude beyond plane of surface. Apply a finish coat to cover tape and taping compound at all tapered angles and provide a true angle. Where necessary, sand lightly between coats and following final application of compound to provide a smooth surface ready for decoration. When sanding, do not roughen face paper.

### 3.09 FINISHING FASTENERS

- A. Apply a taping, all-purpose type, or ready-mixed compound to fastener depressions as first coat. Follow with a minimum of 2 additional coats of topping or all-purpose compound, leaving all depressions level with surface.

### 3.10 FINISHING BEADS, TRIMS, AND CONTROL JOINTS

- A. Apply first coat and tape to all flanges, and properly feather out from ground to plane of surface. Compound must thoroughly dry prior to application of second coat. Some joint compounds need only to have hardened prior to application of next coat. Refer to instructions on container.
- B. Apply a second coat in same manner as first coat, extending compound slightly beyond onto face of board. Compound must be thoroughly dry prior to application of finish coat.
- C. Apply finish coat, extending compound slightly beyond second coat and properly feathering from ground to plane or surface. Exception: Only two coats of some ready-mixed compounds are needed. Sand finish as necessary to provide a flat, smooth surface ready for decoration. When sanding, do not roughen face paper.

### 3.11 LEVEL OF FINISH

- A. Surfaces to receive tile, surfaces to receive fire taping, and/or surfaces not exposed to view, shall be finished to a minimum of AWCI Level 2.



- B. Surfaces to receive heavy textured finish or heavy grade wall covering shall be finished to a minimum of AWCI level 3.
- C. Surfaces to receive paint or light grade wall coverings shall be finished to a minimum of AWCI level 4.
- D. Surfaces to receive gloss, semi-gloss, or egg shell paint shall be finished to a minimum of AWCI level 4.
- E. Level 5 finish only required in locations specifically noted on the contract drawings. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

### 3.12 TOLERANCES

- A. Maximum variation of finished gypsum board surface from true flatness: 1/8 inch in 10 feet in any direction.

### 3.13 WASTE MANAGEMENT

- A. Separate and recycle waste materials to maximize extent economically feasible in compliance with Waste Management Plan for LEED Credit MR 2.1 and MR 2.2
- B. Plan and coordinate work to minimize generation of off-cuts and waste. Sequences work to maximize use of GWB off-cuts and waste.

### 3.14 CLEANING AND REPAIR

- A. Clean all excess materials each day. Promptly remove any residual joint compound from adjacent surfaces.
- B. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.
- C. Repair damaged work prior to Punch List

## END OF SECTION



## 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. Interior gypsum board.
  - 2. Fire resistive Type X Gypsum Board.
  - 3. Abuse-Resistant Gypsum Board
  - 4. Moisture and Mold-Resistant gypsum board.
  - 5. Acoustical Perforated Gypsum Board.
  - 6. Trim and Accessories.
  - 7. Joint treatment, tapes, compounds and finishing.
  - 8. Miscellaneous metal framing, furring, and fasteners.
  - 9. Sound attenuation insulation and acoustical sealants.
  - 10. All related items necessary to complete the work of this section.

### 1.03 SUBMITTALS

- A. Product Data: For each type of product.
- B. Submit manufacturers' product information, specifications, and installation instructions for the specified products including joint compounds, fasteners, trim, control joints, joint reinforcing, metal furring members, metal studs, tracks, runners, resilient clips, steel grounds, and all related accessories.
  - 1. Trim Accessories: Full-size Sample in 12-inch (300-mm-) long length for each trim accessory indicated.
- C. Mockups: Before beginning gypsum board installation, install mockups of at least 100 sq. ft. (9 sq. m) in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

### 1.05 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.



## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

### 2.02 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

### 2.03 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. National Gypsum Company.
  - 2. USG Corporation.
  - 3. Or approved equal.
- B. Gypsum Wallboard: ASTM C1396/C1396M.
  - 1. Thickness: 5/8 inch (15.9 mm) and 1/2 inch (12.7 mm).
  - 2. Long Edges: Tapered and featured (rounded or beveled) for Pre-filling.
- C. Gypsum Board, Type X: ASTM C1396/C1396M.
  - 1. Thickness: 5/8 inch (15.9 mm) and 1 inch (25.4 mm).
- D. Abuse-Resistant Gypsum Board: ASTM C1629/C1629M, Level 3.
  - 1. Long Edges: Tapered.
  - 2. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D 3274.
  - 3. Weight: 2.8 lbs. per sf.
  - 4. Flame spread rating: ASTM E84, 15.
  - 5. Water Absorption: ASTM C473, Less than 5%.
- E. Moisture- and Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.
  - 1. Core: 5/8 inch (15.9 mm), regular type; 5/8 inch Type X.
  - 2. Long Edges: Tapered.
  - 3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D 3274.

### 2.04 SPECIALTY GYPSUM BOARD

- A. Acoustical Perforated Gypsum Board:
  - 1. Acoustical Panel Type :
    - a. Basis of Design: Subject to compliance with project requirements, the design is based on the following: USG Interiors, LLC, "USG Danoline Wall and Ceiling Panels, Perforated Acoustical Gypsum" or Architect approved equivalent.



## GYPSUM BOARD

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

**H2M**

- b. Panel Edge: 4 sided bevel, no visible joints after finishing.
  - c. Panel Thickness: 1/2 inch.
  - d. Panel Size: 48 by 96 inches.
  - e. Perforation: S9 Square.
  - f. Perforation Pattern: 2L4 Eights.
  - g. Percent Open Area: S9 Square 2L2 15%.
  - h. NRC: Not less than: 0.55 - 0.70.
  - i. Color: Manufacturers standard Unpainted - Field Paint. Color as selected by Architect..
    - 1) Panel finishing: Fill and sand all screw holes with USG Setting Compound, sand and finish to a smooth & uniform appearance.
    - 2) Panel Priming: Spot apply primer as required.
    - 3) Finish Paint: Use "Dry Roller Technique" for paint application. Apply Two Coats of finish paint with low nap foam roller. Roll excess paint from brush prior to applying coat of paint. Avoid painting interior of perforations. Do not overload paint roller.
  - j. Filling of Holes at cut openings in tile: Apply USG Durabond® Setting-Type compound to holes adjacent to openings. Protect areas not to be filled with painting tape. Allow patching compound to dry, sand smooth, apply primer and paint where needed.
2. If additional Acoustical performance is required, install optional acoustical panel above factory applied acoustical sheet. Field cut acoustical panels as required for a tight fit to the panel framing members.
- a. Option 1: Acoustical Backer Panel
    - 1) Basis-of-Design Product: USG Corporation; Mars High NRC/ High CAC panels.
      - (a) Acoustical Absorption NRC: 0.80.
      - (b) Edge/Joint Detail: SQ Square.
      - (c) Panel Thickness: 1 inch.
      - (d) Modular Size: 1'-10" by 3'-8".
      - (e) Installation: friction fit in between suspension framing members.
  - b. Option 2: Acoustical Board
    - 1) Basis-of-Design Product: Knauf Insulation; Acoustical Smooth Board with ECOSE® Technology.
      - (a) Acoustical Absorption: 0.80.
      - (b) Edge/Joint Detail: SQ Square.
      - (c) Panel Thickness: 3/4 inch.
      - (d) Modular Size: 2'-4' wide by 4'-10' long.
      - (e) Installation: friction fit in between suspension framing members.

### 2.05 TILE BACKING PANELS

### 2.06 TRIM ACCESSORIES

- A. Interior Trim: ASTM C1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
  - 2. Shapes:
    - a. Cornerbead.
    - b. L-Bead: L-shaped; exposed long flange receives joint compound.
    - c. Expansion (control) joint.



- B. PVC Rip Bead L-Trim (VLZL) with tear-away strip to be removed after drywall finishing and painting to form a crisp, clean edge. 0.028 PVC material with 5/8 inch Tear away flange, 10 foot lengths with perforated flanges. Manufacturer: ClarkDietrich or approved equal.
- C. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Fry Reglet Corp.
    - b. Gordon, Inc.
    - c. Pittcon Industries.
  - 2. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified or finish as specified on the drawings..

## 2.07 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C475/C475M.
- B. Joint Tape:
  - 1. Interior Gypsum Board: Paper.
  - 2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
  - 3. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Pre-filling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
  - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.

## 2.08 MATERIALS

- A. Metal Framing: Protective coating of framing shall conform to ASTM A653/A653M - G40 minimum, or shall be a protective coating with equal or better corrosion resistance.
  - 1. Runners: In compliance with ASTM C645, provide 1-1/2" galvanized steel runners to match applicable assembly specified, to match wall framing members, unless indicated otherwise.
  - 2. Furring members: In compliance with ASTM C645, provide galvanized cold rolled steel, 0.0296" minimum thickness of base metal or 20 gage min., screw type hat shaped channels; 7/8" depth, width approx. 2 3/4", hemmed edges. Where furring channels are used in conjunction with resilient clips, width of channel shall be coordinated with clip configuration to ensure proper fit.
  - 3. Vertical Supports: 1" x 1/8" steel flat bars installed a maximum 4'-0" on center, slotted for 3/8" diameter bolts at each end. 3" x 3" x 3/16" steel angle, slotted to receive 3/8" diameter bolt and faster to truss above with a safe working load of 300 pounds minimum.
  - 4. Fasteners for Metal Framing: Provide fasteners of type, size, style, grade, holding power, class, and other properties required for secure installation of framing and furring. Galvanize all fasteners and accessories. All devices, other than bolts, used to interconnect ceiling members are required to be certified and listed by an Approved Agency.



- B. Fasteners: Fasteners for securing board to metal furring or wood shall be Phillips Head, black oxidized screws made for fastening gypsum wall board, size and length as recommended by the drywall manufacturer for the applications shown.
- C. Joint Compound for Tile Backing Panels:

## 2.09 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Sound Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
- D. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
    - b. Grabber Construction Products; Acoustical Sealant GSC.
    - c. Pecora Corporation; AC-20 FTR AIS-919.
    - d. USG Corporation; SHEETROCK Acoustical Sealant.
    - e. Approved Equal.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.



- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch (6.4- to 9.5-mm-) wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4 to 1/2-inch (6.4 to 12.7-mm) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- J. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- K. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

### 3.03 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
  - 1. Wallboard Type: As indicated on Drawings.
  - 2. Type X: As indicated on Drawings.
  - 3. Ceiling Type: As indicated on Drawings.
  - 4. Abuse-Resistant Type: As indicated on Drawings.
  - 5. Moisture- and Mold-Resistant Type: As indicated on Drawings.
  - 6. Glass-Mat Interior Type: As indicated on Drawings.
- B. Single-Layer Application:



1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
  2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
  3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Multilayer Application:
1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches (400 mm) minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
  2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
  3. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

### 3.04 CONSTRUCTION TOLERANCES

- A. Do not exceed 1/8" in 8'-0" variation from plumb or level in any exposed line or surface, except at joints between units do not exceed 1/16" variation between planes of abutting edges or ends. Shim as required to comply with specified tolerances. Variations shall not be visible in finished surfaces.
- B. For soffits and ceilings verify that direct suspension system has been installed properly, that main runners are spaced 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.
- C. Water-Resistant Backing Board: Install where indicated with 1/4 inch (6.4 mm) gap where panels abut other construction or penetrations.

### 3.05 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
  1. Exposed Edges: Where an exposed edge of gypsum drywall abuts dissimilar materials use Gold Bond #C250 casing bead or equal. Casing beads to be finished with joint compound. Same casing bead and joint treatment is to be used on exposed wallboard edges.



- D. Trim: 1/16 inch thick extruded aluminum 6063-T5 mill finish manufactured by Gorden Inc. or approved equal:
  - 1. J-Trim: Model JD-58
  - 2. Control Joint: Model RD-5810
  - 3. Corner Joint: Model FD-5810
  - 4. 'F' Reveal: Model 412-5/8
  - 5. Reveal Trim: Series 900, Model 904 RT-12
  - 6. Trim Reveal: Series 300, Model 312-5/8.
- E. Neatly cut all openings so that they may be covered by plates and escutcheons.
- F. Place control joints consistent with lines of building spaces as directed.
  - 1. Gypsum Panel surfaces should be isolated with control joints or other means where:
    - a. Partition, furring or column fireproofing abuts a structural element (except floor) or dissimilar wall or ceiling;
    - b. Ceiling abuts a structural element, dissimilar wall or partition or other vertical penetration; construction changes or ceiling;
    - c. Construction changes within the plane of the partition or ceiling;
    - d. Partition or furring run exceeds 30 feet;
    - e. Ceiling dimensions exceed 50 feet in either direction;
    - f. The area within separate ceiling sections exceeds 2,500 sq. ft.;
    - g. Wings of "L", "U", and "T" shaped ceiling areas are joined;
  - 2. Penetrations of the gypsum panel diaphragm, such as door frames, borrowed-light openings, vents, grilles, access panels and light troffers, require additional reinforcement at the corners to distribute concentrated stresses if a control joint is not used.
  - 3. Place edge trim where gypsum board abuts dissimilar materials. Use longest practical length.
  - 4. Provide additional framing and blocking as required to support gypsum board at openings and cutouts, and to support built-in anchorage and attachment devices for other work.
  - 5. Coordinate installation of joint sealers specified in Section 079200 at penetrations and where abutting different materials.
  - 6. Cornerbead: Use at outside corners unless otherwise indicated.
  - 7. LC-Bead: Use where indicated.
  - 8. L-Bead: Use where indicated.

### 3.06 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Pre-fill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
  - 2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated. All joints and interior angles shall have tape embedded in joint compound and two separate



coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. Prepared surface shall be coated with a drywall primer/sealer prior to the application of finish paint.

- a. Primer and its application to surfaces are specified in Section 099113 - Exterior Painting and 099123 - Interior Painting.
- 3. Level 5: Where indicated on Drawings.
  - a. Primer and its application to surfaces are specified in Section 099113 - Exterior Painting and 099123 - Interior Painting.

E. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

### 3.07 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

### END OF SECTION



## 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 acoustical panels and exposed suspension systems for ceilings.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

### 1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, 6 inches (150 mm) in size.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
  - 1. Acoustical Panel: Set of full-size Samples of each type, color, pattern, and texture.
  - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch (150-mm) long Samples of each type, finish, and color.

### 1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Product Test Reports: For each acoustical panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency.

### 1.05 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

### 1.06 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Acoustical Ceiling Panels: Full-size panels equal to 2 percent of quantity installed.
  - 2. Suspension-System Components: Quantity of each exposed component including decorative moldings, equal to 2 percent of quantity installed.
  - 3. Hold-Down Clips: Equal to 2 percent of quantity installed.

### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.



- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

#### 1.08 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
  - 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

#### 1.09 WARRANTY

- A. Provide manufacturer's 30-year limited systems warranty covering defects in materials and / or factory workmanship for ceiling panels and suspension systems.
- B. Provide manufacturer's 10-year limited warranty covering sagging and warping defects caused by materials or factory workmanship for Humidity and Moisture-resistant ceiling systems.
- C. Provide manufacturer's 1-year limited warranty covering defects in materials and / or factory workmanship for Acoustical canopy ceiling systems.

### PART 2 - PRODUCTS

#### 2.01 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Acoustical ceiling shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Surface-Burning Characteristics: Comply with ASTM E84 testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Comply with ASTM E1264 for Class A materials.
  - 2. Smoke-Developed Index: 50 or less.

#### 2.02 ACOUSTICAL PANELS, GENERAL

- A. Low-Emitting Materials: Acoustical panel ceilings 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."
- B. Source Limitations:
  - 1. Acoustical Ceiling Panel: Obtain each type from single source from single manufacturer.
  - 2. Suspension System: Obtain each type from single source from single manufacturer.
- C. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system from single source from single manufacturer.



- D. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- E. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance unless otherwise indicated.
  - 1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface according to ASTM E795.
- F. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
  - 1. Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

### 2.03 ACOUSTICAL PANELS (ULTIMA)

- A. Basis-of-Design Product Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Armstrong World Industries, Inc.: Ultima 1912HRC
  - 2. Or approved equal.
- B. Classification: Provide panels complying with ASTM E1264 for type, form, and pattern as follows:
  - 1. Type and Form: Type IX, mineral base with factory-applied latex paint; Form 2, water felted; with Durabrite acoustically transparent membrane. .
  - 2. Pattern: As indicated by manufacturer's designation.
- C. Color: Black, White.
- D. LR: ASTM E1477; Not less than 0.90.
- E. NRC: ASTM C423; Not less than 0.70.
- F. CAC: ASTM C1414; Not less than 35.
- G. Articulation Class (AC): ASTM E1111/E1111M; Classified with UL label.
- H. Edge/Joint Detail: Beveled Tegular.
- I. Thickness: 3/4 inch (19 mm).
- J. Modular Size: 24 by 24 inches (610 by 610 mm).
- K. Mold/Mildew Inhibitor: Front and Back of each panel shall be treated with BioBlock, paint containing a biocide to inhibit / retard the growth of mold or mildew, ASTM D3273.



## 2.04 ACOUSTICAL PANELS

- A. Basis-of-Design Product Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Armstrong World Industries, Inc.: School Zone Fine Fissured
  - 2. Or approved equal.
- B. Classification: Provide panels complying with ASTM E1264 for type, form, and pattern as follows:
  - 1. Type and Form: Type III, mineral base with factory-applied latex paint; Form 2, water felted; with Durabrite acoustically transparent membrane. .
  - 2. Pattern: As indicated by manufacturer's designation.
- C. Color: Black, White.
- D. LR: Not less than 0.83.
- E. NRC: Not less than 0.70.
- F. CAC: Not less than 35.
- G. Edge/Joint Detail: Square Lay-in.
- H. Thickness: 3/4 inch (19 mm).
- I. Modular Size: 24 by 24 inches (610 by 610 mm).

## 2.05 ACOUSTICAL PANELS (USG MARS)

- A. Basis-of-Design Product Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. USG Interiors, LLC: Mars 86185
  - 2. Or approved equal.
- B. Classification: Provide panels complying with ASTM E1264 for type, form, and pattern as follows:
  - 1. Type and Form: Type IV, mineral base with membrane faced overlay; Form 1 & 2, nodular and water felted.
  - 2. Pattern: E & G, smooth and light texture. As indicated by manufacturer's designation.
- C. Color: Black, White.
- D. LR: ASTM E1477; Not less than 0.90.
- E. NRC: ASTM C423; Not less than 0.75.
- F. CAC: ASTM C1414; Not less than 35.
- G. Articulation Class (AC): ASTM E1111/E1111M; Classified with UL label.
- H. Edge/Joint Detail: SQ Square.



- I. Thickness: 3/4 inch.
- J. Modular Size: 24 by 24 inches (610 by 610 mm).
- K. Suspension Grid/ Wldth: DX/DXL, 9/16 inch (14 mm)
- L. Recycled Content: 69%
- M. Thermal Resistance: R= 2.2
- N. High Recycled Content: Classified as containing greater than 50% total recycled content. Total recycled content is based on product composition of post-consumer and pre-consumer post-industrial recycled content per FTC guidelines.
- O. VOC Emissions: Meets CA Spdecifications 01350, Greenguard Gold Low VOC.
- P. Climaplus™ 30 year warranty performance: Contains a broad spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. includes sag resistance performance.

#### 2.06 ACOUSTICAL PANELS (ROCKFON)

- A. Basis-of-Design Product Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Roxul Rockfon: Tropic
  - 2. Or approved equal.
- B. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
  - 1. Type and Form: Type XX, Stone wool base with membrane-faced overlay and factory painted glass scrim surface.
  - 2. Pattern: 'G' or as indicated by manufacturer's designation.
- C. Color: Black, White.
- D. LR: Not less than 0.85.
- E. NRC: Not less than 0.85.
- F. CAC: Not less than 22.
- G. R Value: 2.2
- H. Edge/Joint Detail: Square Tegular.
- I. Thickness: 5/8 inch (19 mm) unless noted otherwise.
- J. Modular Size: 24 by 24 inches (610 by 610 mm).
- K. Fire Class: A



## 2.07 ACOUSTICAL CANOPIES

- A. Basis-of-Design Product Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Armstrong World Industries, Inc.: SOUNDSCAPES Shapes, 5444 (Hexagon)
  - 2. Or approved equal.
- B. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
  - 1. Type and Form: Type XII, Form 2, Pattern E. Pattern. Panels with factory painted DuraBrite scrim on face and back. Side are painted. Panel Arc- 129 inch radius. Panels shall have embedded, flush-mounted hardware system and aircraft cable support kits.
  - 2. Performance Characteristics:
    - a. Anti Mold & Mildew.
    - b. Sag Resistant. - HumiGuard+
    - c. Water Repellent.
    - d. Washable.
    - e. Scratch Resistant.
    - f. Soil Resistant.
    - g. Recycled Content (50%).
    - h. Panel weight: 1 lb. / sq. ft.
  - 3. Pattern: Pattern E or as indicated by manufacturer's designation.
- C. Color: White (WH)
- D. LR: Not less than 0.90
- E. Sabins / Panel: 30 (ASTM C423)
- F. Fire rating: Class A
- G. Edge/Joint Detail: Square.
- H. Thickness: 1.18 inches (30 mm) for curved panels and 1.57 inch (39.8 mm) for flat panels.
- I. Modular Size: 48 by 72 inches (1220 by 1830 mm)
- J. Shape: Hill / Valley as indicated on drawings.
- K. Hanging Kit: 5450 - number of kits per panel as recommended by manufacturer.
- L. Hanging Cables: 625530 (4) 30 foot cables each kit.

## 2.08 METAL SUSPENSION SYSTEMS, GENERAL

- A. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Metal Suspension-System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C635/C635M.



1. High-Humidity Finish: Comply with ASTM C635/C635M requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.
- C. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- D. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
  1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
  2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C635/C635M, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.135-inch- (3.5-mm-) diameter wire.
- E. Hanger Rods Flat Hangers: 1/4 inch diameter, Mild steel, zinc coated or protected with rust-inhibitive paint.
- F. Angle Hangers: Angles with legs not less than 7/8 inch (22 mm) wide; formed with 0.04-inch- (1-mm-) thick, galvanized-steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation; with bolted connections and 5/16-inch- (8-mm-) diameter bolts.
- G. Cold Rolled Channel: 1 1/2 inch deep, 16 MSG cold rolled steel with protective zinc coating. Tie to supporting structure with 12 SWG galvanized wire ties. Install at 4'-0" o.c. maximum or as indicated on the drawings.
- H. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.
- I. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.
- J. Seismic Clips: Manufacturer's standard seismic clips designed and spaced to secure acoustical panels in place. Conform to "Code of Practices for Acoustical Ceiling System Installations" by CISCA - Ceilings & Interior Systems Contractors Association.
- K. Hold-Down Clips: Provide manufacturer's standard hold-down clips (Armstrong CHDC or equal) spaced 24 inches (610 mm) o.c. on all cross tees. At exterior locations provide Exterior Hold Down Clips in size determined by the panel thickness (Armstrong EHDC or equal).
- L. Retention Clips: Provide Armstrong 414 Retention Clips in Gymnasium and Activity spaces. Install as recommended by the manufacturer to secure each panel.
- M. Shadow Reveal Transition Molding: Provide in size to match the adjacent grid field in 10 foot lengths, 1 1/4" height and width as determined by field grid. Armstrong 7901 for 9/16" grid and 7902 for 15/16" grid.
- N. Canopy system installations shall be as recommended by the manufacturer. Panels shall not be field altered, drilled or cut.
  1. Provide a minimum of 18 inches between panels.
  2. Panels shall not be field painted.
  3. Hanging system shall not be tied to another commercial suspension system. Hang system from building structure in accordance with the manufacturer's specifications.



## 2.09 METAL SUSPENSION SYSTEM - 9/16 GRID

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Armstrong World Industries, Inc. - Suprafine
  - 2. CertainTeed Corp.
  - 3. Chicago Metallic Corporation.
- C. Narrow-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A653/A653M, not less than G30 (Z90) coating designation; with prefinished 9/16-inch- (15-mm-) wide metal caps on flanges.
  - 1. Structural Classification: Heavy-duty system.
  - 2. End Condition of Cross Runners: butt-edge type.
  - 3. Face Design: Flat, flush.
  - 4. Cap Material: Steel cold-rolled sheet.
  - 5. Cap Finish: Painted black, white.

## 2.10 METAL EDGE MOLDINGS AND TRIM

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product : Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Armstrong World Industries, Inc.
  - 2. Chicago Metallic Corporation.
  - 3. USG Interiors, Inc.; Subsidiary of USG Corporation.
- C. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
  - 1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and suspension systems indicated and that match width and configuration of exposed runners unless otherwise indicated.
  - 2. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
  - 3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

## 2.11 ACOUSTICAL SEALANT

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Acoustical Sealant for Exposed and Concealed Joints
    - a. Pecora Corporation ; AC-20 FTR Acoustical and Insulation Sealant.



- b. USG Corporation: SHEETROCK Acoustical Sealant.
- B. Acoustical Sealant: Manufacturer's standard sealant complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  - 1. Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

### 3.03 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C636/C636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
  - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
  - 4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  - 5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
  - 6. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.



7. Do not attach hangers to steel deck tabs.
  8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  9. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches (200 mm) from ends of each member.
  10. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or post-installed anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
  2. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.
  3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. Arrange directionally patterned acoustical panels as follows:
    - a. As indicated on reflected ceiling plans.
    - b. Install panels with pattern running in one direction parallel to short axis of space.
  2. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
  3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
  4. Install hold-down clips in areas indicated, in areas required by authorities having jurisdiction, and for fire-resistance ratings; space as recommended by panel manufacturer's written instructions unless otherwise indicated.

### 3.04 FIELD QUALITY CONTROL

- A. Testing Agency: a qualified testing agency to perform tests and inspections and prepare test reports.
- B. Perform the following tests and inspections of completed installations of acoustical panel ceiling hangers and anchors and fasteners in successive stages. Do not proceed with installations of acoustical panel ceiling hangers for the next area until test results for previously completed installations show compliance with requirements.
1. Extent of Each Test Area: When installation of ceiling suspension systems on each floor has reached 20 percent completion but no panels have been installed.



- a. Within each test area, testing agency will select one of every 10 power-actuated fasteners and post-installed anchors used to attach hangers to concrete and will test them for 200 lbf (890 N) of tension; it will also select one of every two post-installed anchors used to attach bracing wires to concrete and will test them for 440 lbf (1957 N) of tension.
  - b. When testing discovers fasteners and anchors that do not comply with requirements, testing agency will test those anchors not previously tested until 20 pass consecutively and then will resume initial testing frequency.
- C. Acoustical panel ceiling hangers and anchors and fasteners will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

### 3.05 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

### END OF SECTION



## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Luminous Canopies
- B. Cable hangers and fasteners

### 1.02 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- C. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- D. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2014.
- E. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2017.
- F. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.
- G. 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; 2017.
- H. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2019.
- I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

### 1.03 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

### 1.04 SUBMITTALS

- A. See Section 013300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate layout of canopies, support locations and details for ceiling suspension, and orientation of the images or patterns on luminous panels.
- C. Product Data: Provide data showing ceiling component construction and finishes. Submit manufacturer's technical data for each type of canopy system required
- D. Luminous Element Samples: Submit two samples, 6 by 6 inches (305 by 305 mm) in size, illustrating material, finish, and support details.



## LUMINOUS CEILINGS

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
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**H2M**

- E. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Quality Assurance. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- F. Maintenance Data: Manufacturer's instructions for cleaning and replacement.
- G. Manufacturer's Qualification Statement.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016100 - Product Requirements, for additional provisions.
  - 2. Extra Luminous Ceiling Components: Two percent of total product installed, but not less than Two of each type.

### 1.05 QUALITY ASSURANCE

- A. Coordination of Work: Coordinate canopy work with installers of related work including, but not limited to suspended ceilings, building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.
- B. Electrical Work: Comply with requirements of NFPA 70.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- D. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.
- E. Single-Source Responsibility: Provide canopies and method of attachment by a single manufacturer.

### 1.06 MOCK-UP

- A. Provide mock-up of each type of luminous ceiling system, including at least one of each component.
- B. Analyze mock-up to determine illumination level and comfort achieved.
- C. Mock-up may not remain as part of the Work.

### 1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver canopies to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing canopies, permit them to reach room temperature and a stabilized moisture content.
- C. Handle canopies carefully to avoid damaging units in any way.
- D. Building areas to receive canopies shall be free of construction dust and debris. Products can be installed up to 100°F (38°C) and in spaces before the building is enclosed, where HVAC



## LUMINOUS CEILINGS

H2M

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systems are cycled or not operating. Cannot be used in exterior applications, where standing water is present, or where moisture will come in direct contact with the canopy.

### 1.08 WARRANTY

- A. Infusions Products: Submit a written warranty executed by the manufacturer, agreeing to repair or replace canopies that fail within the warranty period. Failures include, but are not limited to:
  - 1. Infusion : Manufacturer's defects.
  - 2. Attachment devices: Rusting and manufacturer's defects.
- B. B. Warranty Period:
  - 1. Infusions Products: One (1) year from date of substantial completion.
  - 2. Attachment devices: One (1) year from date of substantial completion.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Luminous Canopy System:
  - 1. Armstrong World Industries, Inc.
  - 2. Architect approved equivalent.
  - 3. Substitutions: Section 016100 - Product Requirements and 012500 - Product Substitution Procedures

### 2.02 LUMINOUS CANOPIES

- A. Luminous Canopy System:
  - 1. Infusions Accent Canopies
    - a. Surface Texture: Smooth
    - b. Composition: Polycarbonate
    - c. Color: As selected by Architect from manufacturer's full range.
    - d. Size: 24 in x 72 in
    - e. Thickness: 1/4 in
    - f. Edge Detail: Square
    - g. Arc Radius:
      - 1) Items 54061 & 54062 - 2' X 6' (60 degrees) & (90 degrees)
    - h. Fire Properties: (Aluminum - Noncombustible); (Infusion Canopies have been tested according to NFPA 286 and are equivalent to Class A interior finish as defined in Chapter 8 of the International Building Code).
    - i. Acceptable Product: INFUSIONS Accent Canopies, 54061 as manufactured by Armstrong World Industries, Inc. or Architect approved equivalent.
  - 2. Luminous Canopy Accessories:
    - a. Manufacturer: Armstrong World Industries, Inc.
    - b. Hanging Kits
      - 1) 7004 Standard 8' Hanging Kit N/A
      - (a) 7005 Extended Hanging Kit - 16'
      - (b) 7010 Extended Hanging Kit - 30'



## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that mechanical work above luminous canopies has been completed and does not interfere with ceiling installation or performance.

### **3.02 PREPARATION**

- A. Measure each ceiling area and establish layout of canopies. Comply with reflected ceiling plans. Coordinate panel layout with mechanical, electrical and sprinkler fixtures.
- B. Paint surfaces and mechanical installations in cavity above luminous elements. Use 90 percent reflectance white paint applied as specified in Section 099123 or as indicated on the drawings.
- C. Lay out system on room axis as indicated and as indicated on the drawings.

### **3.03 INSTALLATION**

- A. General: Install luminous canopies, hangers, and accessories in accordance with manufacturer's instructions and in compliance with the authorities having jurisdiction.
- B. Suspension System:
  - 1. Install suspension system in accordance with ASTM C636/C636M and manufacturer's instructions and as supplemented in this section.
  - 2. 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.
  - 3. 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.
  - 4. Do not eccentrically load system or produce rotation of runners.

### **3.04 CLEANING**

- A. Replace any damaged and broken in kind
- B. Clean luminous canopies in accordance with manufacturer's instructions.

## **END OF SECTION**



## 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. Resilient base.
  - 2. Resilient molding accessories.

### 1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.
- C. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches (300 mm) long.

### 1.04 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Furnish not less than 10 linear feet (3 linear m) for every 300 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) nor more than 90 deg F (32 deg C).

### 1.06 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) nor more than 95 degrees F, in spaces to receive resilient products during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Install resilient products after other finishing operations, including painting, have been completed.



## PART 2 - PRODUCTS

### 2.01 THERMOPLASTIC-RUBBER BASE

- A. Manufacturers:
  - 1. Roppe Corporation, USA
  - 2. Allstate Rubber Corp.
  - 3. Burke Mercer Flooring Products, Division of Burke Industries Inc.
  - 4. Johnsonite; A Tarkett Company
  - 5. Or approved equal.
- B. Product Standard: ASTM F1861, Type TP (rubber, thermoplastic).
  - 1. Group: I (solid, homogeneous).
  - 2. Style and Location:
    - a. Style A, Straight: Provide in areas with carpet.
    - b. Style B, Cove: Provide in areas with resilient flooring.
    - c. Style D, Sculptured: Provide in areas indicated.
      - 1) Profile: As indicated.
- C. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- D. Thickness: 0.125 inch (3.2 mm).
- E. Height: 6 inch or as indicated on Drawings.
- F. Lengths: Coils in manufacturer's standard length.
- G. Outside Corners: Preformed.
- H. Inside Corners: Preformed.
- I. Colors: As selected by Architect from manufacturer's full range of colors.

### 2.02 RUBBER MOLDING ACCESSORY

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Roppe Corporation, USA.
  - 2. VPI, LLC, Floor Products Division.
  - 3. Or approved equal.
- B. Description: Rubber nosing for carpet reducer strip for resilient flooring joiner for tile and carpet transition strips.
- C. Profile and Dimensions: As indicated.
- D. Locations: Provide rubber molding accessories in areas indicated.
- E. Colors and Patterns: As selected by Architect from manufacture's full range of colors and patterns.



## 2.03 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
- C. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
  - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

### 3.02 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
  - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

### 3.03 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.



- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.

#### 3.04 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

#### 3.05 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces.
  - 2. Sweep and vacuum horizontal surfaces thoroughly.
  - 3. Damp-mop horizontal surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient stair treads before applying liquid floor polish.
  - 1. Apply two coat(s).
- E. Cover resilient products subject to wear and foot traffic until Substantial Completion.

#### **END OF SECTION**



## 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. Luxury Vinyl Tile.

### 1.03 REFERENCE STANDARDS

- A. Install resilient floor tiles in accordance with the recommended method of the "Tile Contractors Association of America" Handbook.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile.
  - 2. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile
  - 3. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
  - 4. Federal specification SS-T-312B(1) Type IV composition product.
  - 5. ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
  - 6. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
  - 7. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

### 1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Installation Instructions: Provide a copy of the manufacturer's installation instructions to the Owner's Construction Representative.
- C. Samples: Two (2) Full-size units of each color and pattern of floor tile / plank required.

### 1.05 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

### 1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of this Section with minimum 5 years documented experience.
- B. Perform moisture tests to ascertain moisture content of concrete floors scheduled to receive resilient tile flooring and base.
  - 1. Concrete subfloors to receive VCT, LVT, Solid Vinyl, and Carpet Tile shall meet the following requirements for moisture and alkalinity levels:



- a. Moisture vapor emissions shall not exceed three (3) pounds per 1,000 square feet for 24 hours.
    - b. Alkalinity levels shall be between 7.0 and 9.0 pH.
  2. Contractor shall submit to the Architect a written report on the moisture and surface alkalinity of the concrete subfloors verifying compliance with the acceptable parameters listed herein or to the more stringent requirements required by the manufacturer PRIOR to the installation of new flooring materials.
- C. Resilient floor tiles and plank shall be of through-pattern construction and shall contain recycled vinyl content as a percentage of the product composition. Tiles shall be asbestos free.

#### 1.07 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.
1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be delivered and stored under the provisions of 016500 - PRODUCT DELIVERY, STORAGE AND HANDLING.
- B. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles / planks on flat surfaces.
- C. Deliver materials to project site in original, unopened packages, labeled to allow easy identification.
- D. Handle materials carefully to avoid chipping edges or damaging tiles in any way.

#### 1.09 MAINTENANCE MATERIALS

- A. Furnish an extra 3% of each tile type, lot, shape, size, gloss, and color in clean, clearly marked containers to the Owner for maintenance use.

#### 1.10 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 degrees F or more than 95 deg F in spaces to receive floor tile during the following time periods:
1. 48 hours before installation.
  2. During installation.
  3. 48 hours after installation.
- B. Close spaces to traffic for 48 hours after floor tile installation.
- C. Install floor tile after ambient conditions have been met; testing and other finishing operations, including overhead work, dust generating activities and painting, have been completed.



## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM D648 or NFPA 253 by a qualified testing agency.

### 2.02 LUXURY VINYL TILE - URETHANE FINISH

- A. Critical Radiant Flux (CRF): Minimum 0.45 watts per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
- B. Smoke Developed: Smoke value 450 or less based on NBS Smoke Chamber Test when tested in accordance with ASTM E662.
- C. Products:
  - 1. Shaw Contract LVT Unite Collection
  - 2. Or approved equal.
- D. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
- E. Tile Standard: ASTM F1700.
  - 1. Class: Class II - Surface Decorated.
  - 2. Type: B - Embossed Surface.
- F. Static Load Limit: 250 psi
- G. Coefficient of Friction: 0.6 - exceeds ADA Guidelines.
- H. Recommended Level of use: Above Grade
- I. Wear Layer thickness: 0.020 inch
- J. Total Thickness: 0.157 inch.
- K. Size: 48 inch x 9 inch
- L. Colors and Patterns: As selected by the Architect from the manufacturer's full color range of the Unite Collection.
- M. Warranty: Provide Manufacturer's Limited Warranty that material will be free from manufacturing defects for a period of 6 years from the date of Substantial Completion. Additionally, the warranty shall cover discoloration from mold, mildew and alkali.

### 2.03 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.



- C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 10 pH.
  - 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
    - a. Perform anhydrous calcium chloride test according to ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lbs. of water/1000 sq. ft. in 24 hours.
    - b. Perform relative humidity test using in situ probes according to ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
  - 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.



### 3.03 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile. Provide a copy of the Manufacturer's Installation Instructions to the Owner's Construction Representative prior to the commencement of work of this Section.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
  - 1. Lay tiles square with room axis unless indicated otherwise on the contract documents..
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other non-permanent marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- I. Set flooring in place, press with heavy roller to attain full adhesion.
- J. Where applicable for certain floor tile and plank patterns, apply specially formulated acrylic grout between the tiles / planks in strict accordance with the manufacturer's recommendations.
- K. Lay tile in full bond with grain in all tile running in one direction. Coordinate with Architect before installation for direction of grain.
- L. Install feature strips, edge strips and floor graphics / markings as indicated. Fit joints tightly.
- M. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- N. Perform the following operations immediately after completing floor tile installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil.



- O. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- P. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.
  - 1. Apply two coat(s).
- Q. Cover floor tile until Substantial Completion.

**END OF SECTION**



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 modular, fusion-bonded carpet tile.

1.03 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review methods and procedures related to carpet tile installation including, but not limited to, the following:
    - a. Review delivery, storage, and handling procedures.
    - b. Review ambient conditions and ventilation procedures.
    - c. Review subfloor preparation procedures.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
  - 2. Include installation recommendations for each type of substrate.
- B. Shop Drawings: Show the following:
  - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
  - 2. Carpet tile type, color, and dye lot.
  - 3. Type of subfloor.
  - 4. Type of installation.
  - 5. Pattern of installation.
  - 6. Pattern type, location, and direction.
  - 7. Pile direction.
  - 8. Type, color, and location of insets and borders.
  - 9. Type, color, and location of edge, transition, and other accessory strips.
  - 10. Transition details to other flooring materials.
- C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
  - 1. Carpet Tile: Full-size Sample.
  - 2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch (300-mm) long Samples.

1.05 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.



#### 1.06 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
  - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
  - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

#### 1.07 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Carpet Tile: Full-size units equal to 10 percent of amount installed for each type indicated, but not less than 10 sq. yd. (8.3 sq. m).

#### 1.08 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the International Certified Floorcovering Installers Association at the Commercial II certification level.
- B. Fire-Test-Response Ratings: Where indicated, provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 by a qualified testing agency.

#### 1.09 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104.

#### 1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- B. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- C. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

#### 1.11 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, loss of tuft bind strength, loss of face fiber, and delamination.
  - 2. Warranty: Lifetime (MainBoard - Infinity Modular)
    - a. 15 Year (Xguard) against staining.
    - b. 15 Year ColorSafe warranty against color loss from bleach spills



## PART 2 - PRODUCTS

### 2.01 CARPET TILE - SHAW CONTRACT "LIVING SYSTEMS"

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Shaw Contract- "Boundless - 5T314" ecoworx tile secondary backing.
- B. Color: As selected by Architect from manufacturer's full range.
- C. Dye Method: 100% Solution Dyed
- D. Pattern: As selected by the Architect
- E. Fiber Content: eco solution Q nylon
- F. Pile Characteristic: Multi-Level Pattern Loop.
- G. Finished Pile Height: 0.083"
- H. Average Density: 7,373 per cu. yd.
- I. Tile Size: 9" X 36".
- J. Tufted Face Weight: 17 oz/ sq. yd. (64.2 g/m<sup>2</sup>).
- K. Stitches: 9.0 stitches per inch
- L. Total Weight: 28.0 oz./sq. yd. (g/sq. m) for finished carpet tile.
- M. Primary Backing: 100% Synthetic
- N. Applied Soil-Resistance Treatment: SSP Shaw soil protection.
- O. General Performance Characteristics: As follows:
  - 1. Critical Radiant Flux Classification: Not less than 0.45 W/sq. cm. - Class I
  - 2. Indoor Air Quality: CRI Green Label Plus.
  - 3. Methenamine Pill Test (CPSC FF-1-70 or ASTM D 2859): Self Extinguishing.
  - 4. Smoke Density (NFPA-258-T or ASTM E-662): less than 450.
  - 5. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174. Using Shaw 5036 adhesive.
  - 6. Electrostatic Propensity: Less than 3.5 kV according to AATCC 134.
  - 7. Emissions: Provide carpet tile that complies with testing and product requirements of CRI's "Green Label Plus" program.
- P. Warranty: Lifetime Commercial Limited.

### 2.02 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.



- B. Metal Edge/Transition Strips: Extruded aluminum with mill finish of profile and width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
  - 2. Subfloor finishes comply with requirements specified in Section 033000 "Cast-in-Place Concrete" for slabs receiving carpet tile.
  - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch (3 mm) wide or wider and protrusions more than 1/32 inch (0.8 mm) unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

### 3.03 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer. Free lay; install carpet tiles without additional adhesive - pressure sensitive adhesive.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.



## TILE CARPETING

**H2M**

Irvington Union Free School District  
Innovation Suite at Dows Lane Elementary School  
Dows Lane Elementary School  
SED No.: 66-04-02-02-0-002-021

- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use non-permanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.

### 3.04 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
  - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
  - 2. Remove yarns that protrude from carpet tile surface.
  - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protecting Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

## END OF SECTION



## 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 surface preparation and the application of paint systems on interior substrates.
  - 1. Concrete.
  - 2. Concrete Masonry Units.
  - 3. Steel.
  - 4. Galvanized metal.
  - 5. Gypsum board.
  - 6. Wood.
  - 7. Aluminum.
  - 8. Clay Masonry

### 1.03 DEFINITIONS

- A. Flat: Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.
- B. Matte: Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.
- C. Eggshell: Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.
- D. Satin: Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.
- E. Semi-Gloss: Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.
- F. Gloss: Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.
- G. High Gloss: Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

### 1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
  - 1. Product List: For each product indicated, include the following:
  - 2. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  - 3. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
  - 4. VOC content.



#### 1.05 CLOSEOUT SUBMITTALS

- A. Coating Maintenance manual: Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams "Custodian Project Color and Product Information report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

#### 1.06 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.
- B. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams "Custodian Project Color and Product Information report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

#### 1.07 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
    - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.
- B. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer's label with the following information:
  - 1. Product name and type (description).



2. Batch date.
3. Color number.
4. VOC content.
5. Environmental handling requirements.
6. Surface preparation requirements.
7. Application instructions.

#### 1.09 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
- C. Lead Paint: It is not expected that lead paint will be encountered in the Work.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. Benjamin Moore & Co.
  2. PPG Architectural Finishes, Inc.
  3. Sherwin-Williams Company.

#### 2.02 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
  1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  1. Flat Paints and Coatings: 50 g/L.
  2. Nonflat Paints and Coatings: 150 g/L.
  3. Dry-Fog Coatings: 400 g/L.
  4. Primers, Sealers, and Undercoaters: 200 g/L.
  5. Anti-corrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
  6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
  7. Pretreatment Wash Primers: 420 g/L.
  8. Floor Coatings: 100 g/L.
  9. Shellacs, Clear: 730 g/L.



10. Shellacs, Pigmented: `550 g/L.

- D. Colors: As selected by Architect from manufacturer's full range.
1. 30 percent of surface area will be painted with deep tones.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
1. Report in writing conditions that may affect application, appearance, or performance of paint.
- B. Substrate Conditions:
1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
    - a. Concrete: 12 percent.
    - b. Masonry (Clay and CMU): 12 percent.
    - c. Wood: 15 percent.
    - d. Gypsum Board: 12 percent.
  2. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.

#### 3.02 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
1. Concrete Floors: Remove oil, dust, grease, dirt and other foreign materials. Comply with SSPC-SP-13/NACE 6 or ICRI 03732.



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- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
  - 1. SSPC-SP 3, "Power Tool Cleaning."
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  - 1. SSPC-SP 2, "Hand Tool Cleaning."
  - 2. SSPC-SP 3, "Power Tool Cleaning."
  - 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
  - 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections and abraded areas of shop paint and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop primed surfaces.
- H. Galvanized Metal Surfaces: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
  - 1. Scrape and clean knots and apply coat of knot sealer before applying primer.
  - 2. Sand surfaces that will be exposed to view and dust off.
  - 3. Prime edges, ends, faces, undersides and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt and other foreign material that might impair the bond of paints to substrates.

### 3.03 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.



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- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  - 1. Unless otherwise specified or noted, paint all "unfinished" conduits, piping, hangers, ductwork and other mechanical and electrical equipment with color and texture to match adjacent surfaces, in the following areas:
    - a. where exposed-to-view in all exterior and interior areas.
    - b. in all interior high humidity interior areas.
    - c. in all boiler room, mechanical and electrical rooms.
  - 2. In unfinished areas leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
  - 3. Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
  - 4. Do not paint over nameplates.
  - 5. Paint the inside of all ductwork where visible behind louvers, grilles and diffusers for a minimum of 460 mm (18") or beyond sight line, whichever is greater, with primer and one coat of matt black (non-reflecting) paint.
  - 6. Paint the inside of light valances gloss white.
  - 7. Paint disconnect switches for fire alarm system and exit light systems in red enamel.
  - 8. Paint red or band all fire protection piping and sprinkler lines in accordance with mechanical specification requirements and the AHJ. Keep sprinkler heads free of paint.
  - 9. Paint yellow or band all natural gas piping in accordance with mechanical specification requirements and the AHJ.
  - 10. Backprime and paint face and edges of plywood service panels for telephone and electrical equipment before installation to match adjacent wall surface. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
    - a. Uninsulated plastic piping.
    - b. Pipe hangers and supports.
    - c. Metal conduit.
    - d. Plastic conduit.
    - e. Tanks that do not have factory-applied final finishes.
    - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material. Coordinate the installation of required piping labels with the installing contractor in order to schedule painting prior to application of labels.
  - 11. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - h. Other items as directed by Architect.



12. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

### 3.04 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  1. Contractor shall touch up and restore painted surfaces damaged by testing.
  2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### 3.05 PROTECTION

- A. Protect all exterior surfaces and areas, including landscaping, walks, drives, all adjacent building surfaces (including glass, aluminum surfaces, etc.) and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.
- B. Protect all interior surfaces and areas, including glass, aluminum surfaces, etc. and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.
- C. Erect barriers or screens and post signs to warn of or limit or direct traffic away or around work area as required.

### 3.06 CLEANING

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site. Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.07 INTERIOR PAINTING SCHEDULE

- A. Glazed Brick Masonry:
  1. Latex Systems
    - a. Semi-Gloss Finish
      - 1) First Coat: Benjamin Moore, Fresh Start High Hiding All-purpose Primer 0046, 1.2 mils DFT.
      - 2) Second Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4 - 1.7 mils DFT.



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- 3) Third Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4 - 1.7 mils DFT.

### B. Concrete Block Masonry (CMU)

1. Latex System:
  - a. Semi Gloss Finish:
    - 1) First Coat: Benjamin Moore, Corotech Acrylic Block Filler V114, 8 - 16 mils DFT.
    - 2) Second Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4 - 1.7 mils DFT.
    - 3) Third Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4 - 1.7 mils DFT.
2. Two Component Epoxy System (Water Base)
  - a. Gloss Finish:
    - 1) First Coat: Benjamin Moore, Corotech Acrylic Block Filler V114, 8 - 16 mils DFT.
    - 2) Second Coat: Benjamin Moore, Corotech Waterborne Amine Epoxy V440, 1'.5 - 1.9 mils DFT.
    - 3) Third Coat: Benjamin Moore, Corotech Waterborne Amine Epoxy V440, 1.5 - 1.9 DFT.

### C. Concrete Substrates, Traffic Surfaces:

1. Latex Floor Enamel System: (MPI INT 3.2A)
  - a. Prime Coat: Floor paint, latex, slip-resistant, matching topcoat.
  - b. Topcoat: Floor paint, latex slip-resistant, low gloss (maximum Gloss Level 3), MPI #60: Benjamin Moore - Insl-X Tough Shield Floor and Patio TS-3 (<200 g/l).
2. Concrete Stain System (Water-based): (MPI INT 3.2E)
  - a. First Coat: Benjamin Moore - Insl-X Tuffcrete Waterborne Acrylic Concrete Stain CST-2xxx, 450-500 sq. ft. / gal., 153 g/l, MPI #58.
  - b. Second coat: Benjamin Moore - Insl-X Tuffcrete Waterborne Acrylic Concrete Stain CST-2xxx, 450-500 sq. ft. / gal., 153 g/l, MPI #58.

### D. Metal Substrates:

1. Latex System:
  - a. Gloss Finish:
    - 1) First Coat: First Coat: Coronado, Rust Scat Int/Ext WB Acrylic Metal Primer 36, 1.5-1.9 mils .
    - 2) Second Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT.
    - 3) Third Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT.
2. Acrylic System (Solvent Base Finish):
  - a. Gloss Finish Silicone Modified:
    - 1) First Coat: First Coat: Coronado Rust Scat Polyurethane Int-Ext Alkyd Metal Primer 35, 1.8-2.2 mils DFT .
    - 2) Second Coat: Coronado, Rust Scat Silicone Alkyd Enamel Gloss 39 , 2.0-2.5 mils DFT.
    - 3) Third Coat: Coronado, Rust Scat Silicone Alkyd Enamel Gloss 39 , 2.0-2.5 mils DFT.

### E. Metal (Steel Joists, Trusses)

1. Latex Systems:
  - a. Gloss Finish:



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- 1) First Coat: First Coat: Coronado, Rust Scat Int/Ext WB Acrylic Metal Primer 36, 1.5-1.9 mils DFT.
    - 2) Second Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT.
    - 3) Third Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT.
  2. Alkyd System (Solvent Base Finish):
    - a. Gloss Finish Silicone Modified:
      - 1) First Coat: First Coat: Coronado Rust Scat Polyurethane Int-Ext Alkyd Metal Primer 35, 1.8-2.2 mils DFT.
      - 2) Second Coat: Coronado, Rust Scat Silicone Alkyd Enamel Gloss 39 , 2.0-2.5 mils DFT.
      - 3) Third Coat: Coronado, Rust Scat Silicone Alkyd Enamel Gloss 39 , 2.0-2.5 mils DFT.
- F. Galvanized-Metal and Aluminum Substrates:
  1. Pigmented Polyurethane System: (MPI INT 5.4C)
    - a. Prime Coat, MPI #105: Benjamin Moore - Corotech Acrylic Metal Primer V110, 1.5 - 2.0 mdf, (VOC ,<200)
    - b. Intermediate Coat: Polyurethane, two-component, pigmented, matching topcoat.
    - c. Topcoat: Polyurethane, two-component, pigmented, gloss, MPI #105: Benjamin Moore - Corotech Urethane Waterborne Urethane Gloss, V540, 470-530 sq. ft. / gal., 1.6-1.8 mdf, ( 19 g/l).
  2. Latex System
    - a. Gloss Finish:
      - 1) First Coat: Coronado, Rust Scat Int/Ext WB Acrylic Metal Primer 36, 1.5-1.9 mils DFT.
      - 2) Second Coat: Coronado Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 mils DFT.
      - 3) Third Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 mils DFT.
  3. Alkyd System (Waterbased)
    - a. Gloss Finish:
      - 1) First Coat: Coronado, Rust Scat Int/Ext WB Acrylic Metal Primer 36, 1.5 - 1.9 mils DFT.
      - 2) Second Coat: Coronado, Super Kote 5000 Waterborne Acrylic Alkyd Semi-Gloss Finish 204, 1.4 - 1.6 mils DFT.
      - 3) Third Coat: Coronado, Super Kote 5000 Waterborne Acrylic Alkyd Semi-Gloss Finish 204, 1.4 - 1.6 mils DFT.
- G. Wood Substrates:
  1. Latex System:
    - a. Semi-Gloss Finish:
      - 1) First Coat: Benjamin Moore, Fresh Start Latex Primer 023 1.2 DFT.
      - 2) Second Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT.
      - 3) Third Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT.
  2. Stain and Varnish System:
    - a. Gloss Finish:
      - 1) First Coat: Lenmar Waterborne Interior Wiping Stain 1WB.1300.
      - 2) Second Coat: Lenmar Waterborne Aqua-Plastic Urethane Gloss 1WB.1400 .



- 3) Third Coat: Lenmar Waterborne Aqua-Plastic Urethane Gloss 1WB.1400.

H. Gypsum Board Substrates:

1. Latex System:
  - a. Semi-Gloss Finish:
    - 1) First Coat: Benjamin Moore, Ultra Spec 500 Interior Latex Primer N534.
    - 2) Second Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT .
    - 3) Third Coat: Coronado, Rust Scat Acrylic WB Int/Ext Enamel Semi-Gloss C90, 1.4-1.7 DFT.
2. Institutional Low-Odor/VOC Latex System: (MPI INT 9.2M)
  - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149 X- Green. Benjamin Moore - Ultra Spec 500 Latex Primer, N534, (0 g/l).
  - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
  - c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1), MPI #143: Benjamin Moore - Ultra-Spec 500 Latex Flat, N536, (0 g/l), CHPS Certified.
3. High-Performance Architectural Latex System: (INT 9.2B)
  - a. Prime Coat: Primer sealer, latex, interior, MPI #50 X-Green. Benjamin Moore - Ultra Spec 500 Latex Primer, N534, (0 g/l),
  - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
  - c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3), MPI #139: Benjamin Moore Ultra spec 500 Latex Eggshell, N538, (0 g/l), CHPS certified.
4. Water-Based Light Industrial Coating System:
  - a. Prime Coat: Primer sealer, latex, interior, MPI #50 X-Green: Benjamin Moore - Ultra Spec 500 Latex Primer, N534, (0 g/l).
  - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
  - c. Topcoat: Light industrial coating, interior, water based, eggshell, (Gloss Level 3), MPI #151: Benjamin Moore - Corotech Pre-Catalyzed Waterborne Epoxy Eggshell, v342, 1.5- 2.0 mdf, (VOC-72).
  - d. Topcoat: Light industrial coating, interior, water based, semi-gloss, (Gloss Level 5), MPI #153 X-Green: S Benjamin Moore Ultra Spec HP DTM Acrylic Enamel Semi-Gloss HP29, 2.3 mdf, (VOC-45).
5. Epoxy-Modified Latex System: (MPI INT 9.2F)
  - a. Prime Coat: Primer sealer, latex, interior, MPI #50 X-Green: Benjamin Moore - Ultra Spec 500 Latex Primer, N534, (0 g/l).
  - b. Intermediate Coat: Epoxy-modified latex, interior, matching topcoat.
  - c. Topcoat: Epoxy-modified latex, interior, eggshell, (Gloss Level 3), MPI #115: Benjamin Moore - Corotech Pre-Catalyzed Waterborne Epoxy Eggshell, V342, 1.5 - 2.0 mdf, (VOC-72).
  - d. Topcoat: Epoxy-modified latex, interior, gloss, (Gloss Level 6), MPI #115: . Benjamin Moore - Corotech, Acrylic Epoxy Gloss, V450/V450-90, 1.5 - 2.0 mdf, (168 g/l).

END OF SECTION



## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Window shades and accessories.

### 1.02 PRICE AND PAYMENT PROCEDURES

- A. See Section 012100 - Allowances, for cash allowances affecting this section.

### 1.03 REFERENCE STANDARDS

- A. ASTM D4674 - Standard Practice for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Office Environments; 2019.
- B. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015.
- C. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films; 2019.

### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
  - 1. Do not fabricate shades until field dimensions for each opening have been taken.
  - 2. Do not install shades until final surface finishes and painting are complete.

### 1.05 SUBMITTALS

- A. See Section 013300 - SUBMITTALS, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
- C. Shop Drawings: Include shade schedule indicating size, location and keys to details, head, jamb and sill details, mounting dimension requirements for each product and condition, and operation direction.
- D. Samples:
  - 1. Minimum size 6 inches square, representing actual materials, color and pattern of each shade type material.
  - 2. Metal finishes: 2 inch square samples of entire color offering for selection by the Architect.
- E. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- F. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

### 1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.



- B. Installer Qualifications: Company specializing in performing work of this type with minimum 5 years of documented experience.

#### 1.07 MOCK-UP

- A. Mock-Up: Provide full size mock-up of window shade complete with selected shade fabric including sample of seam when applicable.
  - 1. Obtain Architect's approval of light and privacy characteristics of fabric prior to fabrication.
  - 2. Full-sized mock-up will become the property of the Owner to be used for spare parts.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Schedule delivery after building is enclosed and construction is Substantially Complete.
- B. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.
- C. Handle and store shades in accordance with manufacturer's recommendations.

#### 1.09 FIELD CONDITIONS

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### 1.10 WARRANTY

- A. Provide manufacturer's warranty from Date of Substantial Completion, covering the following:
  - 1. Shade Hardware: One year.
  - 2. Fabric: One year.
  - 3. Aluminum and Steel Coatings: One year.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

- A. Manually Operated, Dual Roller Shades:
  - 1. Draper, Inc; Clutch Operated FlexShade - Dual Rollers: [www.draperinc.com/sle](http://www.draperinc.com/sle).
  - 2. Or approved equal.
- B. Shade Fabric:
  - 1. Phifer, Inc; Style 2410 3%: [www.phifer.com](http://www.phifer.com).
  - 2. Color: As selected by the Architect from the manufacturer's full color offering.
- C. Source Limitations: Furnish products produced by a single manufacturer and obtained from a single supplier.

#### 2.02 WINDOW SHADE APPLICATIONS

- A. Shades at windows as indicated: Blackout shades with second shade in same opening.
  - 1. Type: Dual Roller shades.
  - 2. Color: As selected by Architect from manufacturer's full range of colors.
  - 3. Mounting: Inside and outside, where indicated on drawings.
  - 4. Operation: Manual.



## 2.03 DUAL ROLLER SHADES

- A. Roller Shades: Fabric Dual roller shades complete with mounting brackets, roller tubes, hembars, hardware and accessories; fully factory-assembled.
  - 1. Drop: Regular roll.
  - 2. Size: As indicated on drawings.
- B. Unit designed to accommodate two types of fabric shade each on separate roller.
- C. Fabric: Non-flammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation; PVC-free; 100 percent recycled.
  - 1. Rear Roller Shade Material:
    - a. SunBloc Series SB9000: Close woven fiberglass base textile with sun-resistant vinyl film bonded to each side, opaque with minimum tensile strength of 190 pounds for warp and 180 pounds for fill. Fire rating: NFPA 701 1006-Test 1. Washable and stain resistant. Wt. 12 oz/sq yd. Same color both sides, .015 inches thick.
  - 2. Front Roller Shade Material:
    - a. SheerWeave Series SW2600 by Phifer: VOC Emissions: GREENGUARD Gold -certified as a low emitting fabric. Manufacturer to supply GREENGUARD Gold certificate. 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: NFPA 701. Bacteria and Fungi Resistance: ASTM G21 and ASTM G 22. Series SW2600, 10 percent open, .017 inches thick.
    - b. Flammability: Pass NFPA 701 large and small tests.
    - c. Fungal Resistance: No growth when tested according to ASTM G21.
- D. Roller Tube: As required for type of operation, extruded aluminum with end caps.
  - 1. Rollers: Fabricated from steel or extruded aluminum. 2 inch Diameter, .080 inch wall thickness. Provide with roller idler assembly of molded nylon and zinc-plated steel pin. Sliding pin to allow easy installation and removal of roller.
  - 2. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge.
  - 3. Finish: Clear anodized.
- E. Hembars and Hembar Pockets: Wall thickness designed for weight requirements and adaptation to uneven surfaces, to maintain bottom of shade straight and flat.
  - 1. Style: Thermally sealed fabric pocket covering rectangular aluminum hembar.
- F. Manual Operation: Clutch operated continuous loop; beaded ball chain.
  - 1. Bead Chain Clutch Operator: Provide bi-directional, for mounting at either end of roller, chain and bead clutch operating mechanism fabricated from high carbon steel and molded fiberglass-reinforced polyester thermopolymer (PBT), allowing shade to stop when chain is released. Designed to eliminate the need for adjustment. Provide preset limit stops to prevent shade from being raised or lowered too far.
    - a. Bead Chain: #10 stainless steel chain with 120 pound breaking strength or polyester bead chain].
- G. Coupling system: Provide system to operate 2 shades from single operator by coupling shade rollers together. System to consist of bearing brackets and male and female couplings.
- H. Equip shade on rear roller with channels to prevent light leakage and provide total blackout:



## WINDOW SHADES

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1. Side channels: Double chamber fabricated from extruded aluminum sections. One chamber accepts fabric and contains groove for fabric retainer. Other chamber accepts fabric guide and channel locator.
2. Sill channel: Extruded aluminum channel to receive slat bar and prevent light leakage.

### 2.04 PROJECTION SCREEN

- A. Material: Matt white vinyl surface laminated on woven fiberglass base and surface is washable, flame resistant, and mildew resistant; Matt White XT1000E surface as manufactured by Draper, Inc.
- B. Size of Viewing Surface: Provide full width - Borderless screen by the maximum height of the shade in location shown or selected.

### 2.05 ACCESSORIES

- A. Endcaps: 1028 steel stamping. Complete with adapter roller bracket. Installs to wall or ceiling. Accepts fascia.
- B. Nominal size: 4-3/4 inches deep by 7 inches high by length required by window opening, with a return of 1-11/16 inches.
- C. Fascias: Size as required to conceal dual shade mounting.
  1. Fascia: L-shaped cover of extruded aluminum, 0.060 wall. Assembly snaps onto endcaps without exposed fasteners. Clear Anodized (standard) or color powder coat finish as selected by the Architect / Owner.
  2. Style: As selected by Architect from shade manufacturer's full selection.
- D. Brackets and Mounting Hardware: As recommended by manufacturer for mounting configuration and span indicated.
- E. Fasteners: Non-corrosive, and as recommended by shade manufacturer.
- F. Rescue Window Labels: One window and associated shade per classroom or teaching area shall be deemed a "rescue window", for egress in case of emergency. All rescue windows shall comply with SED regulations and applicable codes and shall include a conforming label. At a minimum, provide the following:
  1. Letters: bright yellow background with black letters
  2. Label size: 3 inches high by 5 inches wide
  3. Text: the words "RESCUE WINDOW" must be visible from Interior and Exterior sides of each rescue window.
  4. Any window treatment/coverings at each of these locations must also have labels.
  5. Visible window operating instructions shall be provided if operation is not readily apparent.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Examine finished openings for deficiencies that may preclude satisfactory installation.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.



- C. Start of installation shall be considered acceptance of substrates.

### 3.02 PREPARATION

- A. Field verify window dimensions prior to fabrication.
- B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.
- C. Coordinate with window installation and placement of concealed blocking to support shades.

### 3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Installation Tolerances:
  - 1. Maximum Offset From Level: 1/16 inch (1.5 mm).
- C. Adjust level, projection and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

### 3.04 CLEANING

- A. Clean soiled shades and exposed components as recommended by manufacturer.
- B. Replace shades that cannot be cleaned to "like new" condition.

### 3.05 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate operation and maintenance of window shade system to Owner's personnel.
- B. Training: Train Owner's personnel on operation and maintenance of system.
  - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
  - 2. Provide minimum of two hours training by manufacturer's authorized personnel at location designated by the Owner.

### 3.06 PROTECTION

- A. Protect installed products from subsequent construction operations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

## **END OF SECTION**



## 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 plastic-laminate countertops.

### 1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 1. Show locations and sizes of cutouts and holes for installed in plastic-laminate countertops.
  - 2. Apply AWI Quality Certification Program label to Shop Drawings.
- C. Samples for Initial Selection:
  - 1. Plastic laminates.

### 1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.
- B. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

### 1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.
- C. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver countertops until painting and similar operations that could damage countertops have been completed in installation areas. If countertops must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.



## 1.07 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during the remainder of the construction period.
- C. Field Measurements: Where countertops are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Established Dimensions: Where countertops are indicated to fit to other construction, establish dimensions for areas where countertops are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

## PART 2 - PRODUCTS

### 2.01 PLASTIC-LAMINATE COUNTERTOPS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades indicated for construction, installation, and other requirements.
  - 1. Provide certificates from AWI certification program indicating that countertops, including installation, comply with requirements of grades specified.
  - 2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Custom.
- C. Regional Materials: Plastic-laminate countertops shall be manufactured within 500 miles (800 km) of Project site.
- D. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS .
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Formica Corporation
    - b. Wilsonart International Holdings, Inc
    - c. Or approved equal.
- E. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. As indicated by manufacturer's designations.
  - 2. Match Architect's sample.
  - 3. As selected by Architect from manufacturer's full range in the following categories:
    - a. Solid colors, matte finish.
    - b. Solid colors with core same color as surface, matte finish.



- c. Wood grains, matte finish.
  - d. Patterns, matte finish.
- 4. Grain Direction: Parallel to cabinet fronts.
- F. Edge Treatment: Same as laminate cladding on horizontal surfaces.
- G. Core Material: Particleboard Particleboard made with exterior glue.
- H. Core Thickness: 3/4 inch (19 mm).
  - 1. Build up countertop thickness to 1-1/2 inches (38 mm) at front, back, and ends with additional layers of core material laminated to top.
- I. Paper Backing: Provide paper backing on underside of countertop substrate.

## 2.02 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.
  - 1. Wood Moisture Content: 5 to 10 percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
  - 1. Recycled Content of Medium-Density Fiberboard and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 10 percent.
  - 2. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea formaldehyde.

## 2.03 ACCESSORIES

- A. Grommets for Cable Passage through Countertops :2-inch (51-mm) OD, Color as selected by the Architect, molded-plastic grommets and matching plastic caps with slot for wire passage.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Doug Mockett & Company, Inc.; SG Series.
    - b. Or approved equal.

## 2.04 MISCELLANEOUS MATERIALS

- A. Adhesives: Do not use adhesives that contain urea formaldehyde.
- B. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement .
  - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.
- C. VOC Limits for Installation Adhesives and Sealants: Use products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Wood Glues: 30 g/L.
  - 2. Multipurpose Construction Adhesives: 70 g/L.
  - 3. Structural Wood Member Adhesive: 140 g/L.
  - 4. Architectural Sealants: 250 g/L.



## 2.05 FABRICATION

- A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch (25 mm) over base cabinets. Ease edges to radius indicated for the following:
  - 1. Solid-Wood (Lumber) Members: 1/16 inch (1.5 mm) unless otherwise indicated.
- B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
  - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
- C. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of varnish.

## PART 3 EXECUTION

### 3.01 PREPARATION

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.
- B. Before installing countertops, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

### 3.02 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
  - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
  - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
  - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches (150 mm) of front and back edges and at intervals not exceeding 24 inches (600 mm). Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.



- D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
- E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
  - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.
  - 3. Seal junctures of tops, splashes, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

### 3.03 ADJUSTING AND CLEANING

- A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean countertops on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

### END OF SECTION



## 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. Solid surface material countertops.
  - 2. Solid surface material backsplashes.
  - 3. Solid surface material apron fronts.

### 1.03 ACTION SUBMITTALS

- A. Comply with Section 013300 - SUBMITTALS.
- B. Product Data: For countertop materials.
- C. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
  - 1. Show locations and details of joints.
  - 2. Show direction of directional pattern, if any.
- D. Samples for Initial Selection: For each type of material exposed to view.

### 1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.

### 1.05 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For solid surface material countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

### 1.06 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.
- B. Installer Qualifications: Fabricator of countertops.

### 1.07 FIELD CONDITIONS

- A. Field Measurements: Verify dimensions of countertops by field measurements before countertop fabrication is complete.

### 1.08 COORDINATION

- A. Coordinate locations of utilities that will penetrate countertops or backsplashes.



## PART 2 - PRODUCTS

### 2.01 SOLID SURFACE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
    - a. E. I. du Pont de Nemours and Company: Corian
    - b. Or approved equal.
  - 2. Colors and Patterns: As selected by Architect from manufacturer's full range.
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

### 2.02 COUNTERTOP FABRICATION

- A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
  - 1. Grade: Premium.
- B. Configuration:
  - 1. Front: Radius edge with apron - 2 inch high with 1/4 inch radius.
  - 2. Backsplash: Straight, with 1/4 inch radius top edge and vertical corner edges.
  - 3. End Splash: None.
- C. Countertops: 3/4 inch thick, solid surface material.
- D. Fabricate tops with shop-applied edges and backsplashes unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
  - 1. Fabricate with loose backsplashes for field assembly.
  - 2. Install integral sink bowls in countertops in the shop.
- E. Joints: Fabricate countertops without joints.
- F. Cutouts and Holes:
  - 1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
    - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.
    - b. Provide vertical edges, rounded to 3/8-inch radius at juncture of cutout edges with top surface of countertop, slightly eased at bottom, and projecting 3/16 inch (5 mm) into fixture opening.
    - c. Provide 3/4-inch full bullnose edges projecting 3/8 inch into fixture opening.
  - 2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
  - 3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.



## 2.03 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
  - 1. Adhesives shall have a VOC content of 70 g/L or less.
  - 2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- B. Sealant for Countertops: Comply with applicable requirements in Section 079200 - JOINT SEALANTS.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet, 1/4 inch maximum. Do not exceed 1/64-inch difference between planes of adjacent units.
- B. Fasten subtops to cabinets by screwing through subtops into wall cleats. Shim as needed to align subtops in a level plane.
- C. Secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- D. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
  - 1. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.
- E. Install backsplashes by adhering to wall and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.
- F. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten by screwing through backing. Predrill holes for screws as recommended by manufacturer.
- G. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
- H. Apply sealant to gaps at walls; comply with Section 079200 - JOINT SEALANTS.



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**END OF SECTION**



## SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

### **H2M**

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#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Pipe sleeves.

##### 1.02 RELATED REQUIREMENTS

- A. Section 078400 - Firestopping.
- B. Section 099113 - Exterior Painting: Preparation and painting of exterior piping systems.
- C. Section 099123 - Interior Painting: Preparation and painting of interior piping systems.
- D. Section 220523 - General-Duty Valves for Plumbing Piping.
- E. Section 220553 - Identification for Plumbing Piping and Equipment: Piping identification.
- F. Section 220719 - Plumbing Piping Insulation.

##### 1.03 REFERENCE STANDARDS

- A. ASTM C592 - Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type); 2016.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).

##### 1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals. Indicate installation, layout, weights, mounting and support details, and piping connections.

##### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified this section.
  - 1. Minimum three years experience.
  - 2. Approved by manufacturer.
- C. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

##### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store sleeve and sleeve seals in shipping containers, with labeling in place.



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- B. Provide temporary protective coating on cast iron and steel sleeves if shipped loose.

#### 1.07 WARRANTY

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.

## PART 2 PRODUCTS

### 2.01 PIPE SLEEVES

- A. Manufacturers:
  - 1. Flexicraft Industries; Pipe Wall Sleeve: [www.flexicraft.com/#sle](http://www.flexicraft.com/#sle).
  - 2. Substitutions: See Section 016000 - Product Requirements.
- B. Plastic or Sheet Metal: Pipe passing through interior walls, partitions, and floors, unless steel or brass sleeves are specified below.
- C. Pipe Passing Through Below Grade Exterior Walls:
  - 1. Zinc coated or cast iron pipe.
  - 2. Provide watertight space with link rubber or modular seal between sleeve and pipe on both pipe ends.

## PART 3 EXECUTION

### 3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and foreign material, from inside and outside, before assembly.

### 3.02 INSTALLATION

- A. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
- B. Install piping to conserve building space, to not interfere with use of space and other work.
- C. Install piping and pipe sleeves to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- D. Provide sleeves when penetrating footings, floors, and walls. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire separation required.
  - 1. Underground Piping: Caulk pipe sleeve watertight with lead and oakum or mechanically expandable chloroprene inserts with bitumen sealed metal components.
  - 2. Aboveground Piping:
    - a. Pack solid using mineral fiber complying with ASTM C592.
    - b. Fill space with an elastomer caulk to a depth of 0.50 inch (15 mm) where penetrations occur between conditioned and unconditioned spaces.
  - 3. All Rated Openings: Caulk tight with fire stopping material complying with ASTM E814 in accordance with Section 078400 to prevent the spread of fire, smoke, and gases.



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- 4. Caulk exterior wall sleeves watertight with lead and oakum or mechanically expandable chloroprene inserts with mastic-sealed components.
- E. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

### 3.03 CLEANING

- A. Upon completion of work, clean all parts of the installation.
- B. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.
- C. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

**END OF SECTION**



## GENERAL-DUTY VALVES FOR PLUMBING PIPING

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## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Applications.
- B. General requirements.
- C. Ball valves.
- D. Check valves.
- E. Gate valves.

### 1.02 RELATED REQUIREMENTS

- A. Section 083100 - Access Doors and Panels.
- B. Section 220553 - Identification for Plumbing Piping and Equipment.
- C. Section 220719 - Plumbing Piping Insulation.
- D. Section 221005 - Plumbing Piping.

### 1.03 ABBREVIATIONS AND ACRONYMS

- A. CWP: Cold working pressure.
- B. EPDM: Ethylene propylene copolymer rubber.
- C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
- D. NRS: Non-rising stem.
- E. OS&Y: Outside screw and yoke.
- F. PTFE: Polytetrafluoroethylene.
- G. RS: Rising stem.
- H. SWP: Steam working pressure.
- I. TFE: Tetrafluoroethylene.
- J. WOG: Water, oil, and gas.

### 1.04 REFERENCE STANDARDS

- A. ASME B1.20.1 - Pipe Threads, General Purpose (Inch); 2013 (Reaffirmed 2018).
- B. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2015.



## GENERAL-DUTY VALVES FOR PLUMBING PIPING

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- C. ASME B16.5 - Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard; 2017.
- D. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves; 2017.
- E. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2018.
- F. ASME B16.34 - Valves - Flanged, Threaded and Welding End; 2017.
- G. ASME B31.9 - Building Services Piping; 2020.
- H. ASME BPVC-IX - Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators - Welding Brazing and Fusing Qualifications; 2019.
- I. ASTM B61 - Standard Specification for Steam or Valve Bronze Castings; 2015.
- J. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings; 2017.
- K. AWWA C606 - Grooved and Shouldered Joints; 2015.
- L. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves; 2013.
- M. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.
- N. NSF 61 - Drinking Water System Components - Health Effects; 2020.
- O. NSF 372 - Drinking Water System Components - Lead Content; 2020.

#### 1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listings.
- E. Maintenance Materials: Furnish Owner with one wrench for every five plug valves, in each size of square plug valve head.
  - 1. See Section 016000 - Product Requirements, for additional provisions.

#### 1.06 QUALITY ASSURANCE

- A. Manufacturer:
  - 1. Obtain valves for each valve type from single manufacturer.



## GENERAL-DUTY VALVES FOR PLUMBING PIPING

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2. Company must specialize in manufacturing products specified in this section, with not less than three years of documented experience.

B. Welding Materials and Procedures: Comply with ASME BPVC-IX.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
1. Minimize exposure of operable surfaces by setting plug and ball valves to open position.
  2. Protect valve parts exposed to piped medium against rust and corrosion.
  3. Protect valve piping connections such as grooves, weld ends, threads, and flange faces.
  4. Adjust globe, gate, and angle valves to the closed position to avoid clattering.
  5. Secure check valves in either the closed position or open position.
  6. Adjust butterfly valves to closed or partially closed position.
- B. Use the following precautions during storage:
1. Maintain valve end protection and protect flanges and specialties from dirt.
    - a. Provide temporary inlet and outlet caps.
    - b. Maintain caps in place until installation.
  2. Store valves in shipping containers and maintain in place until installation.
    - a. Store valves indoors in dry environment.
    - b. Store valves off the ground in watertight enclosures when indoor storage is not an option.

#### 1.08 EXERCISE THE FOLLOWING PRECAUTIONS FOR HANDLING:

- A. Handle large valves with sling, modified to avoid damage to exposed parts.
- B. Avoid the use of operating handles or stems as rigging or lifting points.

## PART 2 PRODUCTS

### 2.01 APPLICATIONS

- A. See drawings for specific valve locations.
- B. Provide the following valves for the applications if not indicated on drawings:
1. Shutoff: gate or ball valve.
- C. Substitutions of valves with higher CWP classes or SWP ratings for same valve types are permitted when specified CWP ratings or SWP classes are not available.

### 2.02 GENERAL REQUIREMENTS

- A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.
- B. Valve Sizes: Match upstream piping unless otherwise indicated.
- C. Valve Actuator Types:
1. Hand Lever: Quarter-turn valves 6 NPS (150 DN) and smaller except plug valves.



## GENERAL-DUTY VALVES FOR PLUMBING PIPING

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- D. Valve-End Connections:
  - 1. Threaded End Valves: ASME B1.20.1.
  - 2. Flanges on Iron Valves: ASME B16.1 for flanges on iron valves.
  - 3. Pipe Flanges and Flanged Fittings 1/2 NPS (15 DN) through 24 NPS (600 DN): ASME B16.5.
  - 4. Solder Joint Connections: ASME B16.18.
  - 5. Grooved End Connections: AWWA C606.
- E. General ASME Compliance:
  - 1. Ferrous Valve Dimensions and Design Criteria: ASME B16.10 and ASME B16.34.
  - 2. Solder-joint Connections: ASME B16.18.
  - 3. Building Services Piping Valves: ASME B31.9.
- F. Valve Materials for Potable Water: NSF 61 and NSF 372.
- G. Bronze Valves:
  - 1. Fabricate from dezincification resistant material.
  - 2. Copper alloys containing more than 15 percent zinc are not permitted.
- H. Source Limitations: Obtain each valve type from a single manufacturer.

## 2.03 BRASS BALL VALVES

- A. One-Piece, Reduced-Port with Brass Trim:
  - 1. Comply with MSS SP-110.
  - 2. Body: Forged brass.
  - 3. Ends: Threaded.
  - 4. Seats: PTFE.
  - 5. Stem: Brass.
  - 6. Ball: Chrome-plated brass.
  - 7. Manufacturers:
    - a. Ferguson Enterprises Inc: [www.fnw.com/#sle](http://www.fnw.com/#sle).
    - b. Substitutions: See Section 016000 - Product Requirements.

## 2.04 BRONZE LIFT CHECK VALVES

- A. Class 125:
  - 1. Comply with MSS SP-80, Type 1, Metal Disc to Metal Seat and Type 2, Nonmetallic Disc to Metal Seat.
  - 2. CWP Rating: 200 psig (1380 kPa).
  - 3. Design: Vertical flow.
  - 4. Body: Comply with ASTM B61 or ASTM B62, bronze.
  - 5. Ends: Threaded as indicated.
  - 6. Disc (Type 1): Bronze.

## 2.05 BRONZE GATE VALVES

- A. Non-Rising Stem (NRS) or Rising Stem (RS):
  - 1. Comply with MSS SP-80, Type I.



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2. Class 125: CWP Rating: 200 psig: (1380 kPa), and Class 150: CWP Rating: 300 psig: (2070 kPa).
3. Body: ASTM B62, bronze with integral seat and screw-in bonnet.
4. Ends: Threaded or solder joint joint.
5. Stem: Bronze.
6. Disc: Solid wedge; bronze.
7. Packing: Asbestos free.
8. Handwheel: Malleable iron, bronze, or aluminum.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Discard all packing materials and verify that valve interior, including threads and flanges are completely clean without signs of damage or degradation that could result in leakage.
- B. Verify valve parts to be fully operational in all positions from closed to fully open.
- C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.
- D. Should valve is determined to be defective, replace with new valve.

### 3.02 INSTALLATION

- A. Provide unions or flanges with valves to facilitate equipment removal and maintenance while maintaining system operation and full accessibility for servicing.
- B. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.
- C. Where valve support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.

## END OF SECTION



## HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

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#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Support and attachment components for equipment, piping, and other plumbing work.

##### 1.02 RELATED REQUIREMENTS

- A. Section 033000 - Cast-in-Place Concrete: Concrete equipment pads.
- B. Section 055000 - Metal Fabrications: Materials and requirements for fabricated metal supports.

##### 1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2019.
- D. MFMA-4 - Metal Framing Standards Publication; 2004.
- E. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018.
- F. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
  - 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
  - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
  - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
  - 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
  - 5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
  - 1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 033000.

##### 1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.



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- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for metal channel (strut) framing systems, nonpenetrating rooftop supports, post-installed concrete and masonry anchors, and thermal insulated pipe supports.
- C. Shop Drawings: Include details for fabricated hangers and supports where materials or methods other than those indicated are proposed for substitution.
- D. Evaluation Reports: For products specified as requiring evaluation and recognition by ICC Evaluation Service, LLC (ICC-ES), provide current ICC-ES evaluation reports upon request.
- E. Installer's Qualifications: Include evidence of compliance with specified requirements.
- F. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

#### 1.06 QUALITY ASSURANCE

- A. Comply with applicable building code.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Installer Qualifications for Field-Welding: As specified in Section 055000.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

## PART 2 PRODUCTS

### 2.01 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
  - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work.
  - 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
  - 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
  - 4. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
  - 5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
    - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
    - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Materials for Metal Fabricated Supports: Comply with Section 055000.



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- C. Metal Channel (Strut) Framing Systems:
  - 1. Comply with MFMA-4.
- D. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
- E. Anchors and Fasteners:
  - 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
  - 2. Post-Installed Concrete and Masonry Anchors: Evaluated and recognized by ICC Evaluation Service, LLC (ICC-ES) for compliance with applicable building code.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

### 3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.
- D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Field-Welding (where approved by Architect): Comply with Section 055000.
- H. Provide thermal insulated pipe supports complete with hangers and accessories. Install thermal insulated pipe supports during the installation of the piping system.
- I. Equipment Support and Attachment:
  - 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
  - 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
  - 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.



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4. Unless otherwise indicated, mount floor-mounted equipment on properly sized 3 inch (80 mm) high concrete pad constructed in accordance with Section 033000.
  5. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- J. Secure fasteners according to manufacturer's recommended torque settings.
- K. Remove temporary supports.

### 3.03 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Inspect support and attachment components for damage and defects.
- C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- D. Correct deficiencies and replace damaged or defective support and attachment components.

**END OF SECTION**



## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Piping insulation.

### 1.02 RELATED REQUIREMENTS

- A. Section 099113 - Exterior Painting: Painting insulation jacket.
- B. Section 099123 - Interior Painting: Painting insulation jacket.
- C. Section 221005 - Plumbing Piping: Placement of hangers and hanger inserts.

### 1.03 REFERENCE STANDARDS

- A. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2020a.
- B. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2019.
- C. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation; 2021.
- D. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018a.
- F. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

### 1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
- C. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.



### 1.07 FIELD CONDITIONS

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

## PART 2 PRODUCTS

### 2.01 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

### 2.02 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

- A. Manufacturers:
  - 1. Aeroflex USA, Inc: [www.aeroflexusa.com/#sle](http://www.aeroflexusa.com/#sle).
  - 2. Armacell LLC; AP Armaflex: [www.armacell.us/#sle](http://www.armacell.us/#sle).
  - 3. K-Flex USA LLC; Insul-Tube: [www.kflexusa.com/#sle](http://www.kflexusa.com/#sle).
  - 4. Substitutions: See Section 016000 - Product Requirements.
- B. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1; use molded tubular material wherever possible.
  - 1. Minimum Service Temperature: Minus 40 degrees F (Minus 40 degrees C).
  - 2. Maximum Service Temperature: 220 degrees F (104 degrees C).
  - 3. Connection: Waterproof vapor barrier adhesive.
- C. Elastomeric Foam Adhesive: Air dried, contact adhesive, compatible with insulation.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

### 3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.
- E. For hot piping conveying fluids 140 degrees F (60 degrees C) or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.



- F. Inserts and Shields:
  - 1. Application: Piping 1-1/2 inches (40 mm) diameter or larger.
  - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
  - 3. Insert Location: Between support shield and piping and under the finish jacket.
  - 4. Insert Configuration: Minimum 6 inches (150 mm) long, of same thickness and contour as adjoining insulation; may be factory fabricated.
  - 5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- G. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet (3 meters) above finished floor): Finish with canvas jacket sized for finish painting.
- H. Buried Piping: Provide factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, with one mil (0.025 mm) thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with a polyester film.

**END OF SECTION**



## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
  - 1. Sanitary sewer.
  - 2. Domestic water.
  - 3. Pipe hangers and supports.
  - 4. Ball valves.
  - 5. Valves.

### 1.02 RELATED REQUIREMENTS

- A. Section 099113 - Exterior Painting.
- B. Section 099123 - Interior Painting.
- C. Section 220553 - Identification for Plumbing Piping and Equipment.
- D. Section 220719 - Plumbing Piping Insulation.
- E. Section 330110.58 - Disinfection of Water Utility Piping Systems.

### 1.03 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2018.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2018.
- C. ASSE 1003 - Performance Requirements for Water Pressure Reducing Valves for Domestic Water Distribution Systems; 2009.
- D. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings; 2017.
- E. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- F. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2020.
- G. ASTM B68/B68M - Standard Specification for Seamless Copper Tube, Bright Annealed; 2011.
- H. ASTM B75/B75M - Standard Specification for Seamless Copper Tube; 2020.
- I. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2020.
- J. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.
- K. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2016.
- L. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2016.



- M. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings; 2014.
- N. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2020.
- O. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2017.
- P. ASTM D2855 - Standard Practice for the Two-Step (Primer & Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2020.
- Q. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018.
- R. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.
- S. NSF 61 - Drinking Water System Components - Health Effects; 2020.
- T. NSF 372 - Drinking Water System Components - Lead Content; 2020.

#### 1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: For non-penetrating rooftop supports, submit detailed layout developed for this project, with design calculations for loadings and spacings.

#### 1.05 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.
- C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

#### 1.07 FIELD CONDITIONS

- A. Do not install underground piping when bedding is wet or frozen.



## PART 2 PRODUCTS

### 2.01 GENERAL REQUIREMENTS

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

### 2.02 SANITARY SEWER PIPING, BURIED BEYOND 5 FEET (1500 MM) OF BUILDING

- A. Cast Iron Pipe: ASTM A74 extra heavy weight.
  - 1. Fittings: Cast iron.
  - 2. Joint Seals: ASTM C564 neoprene gaskets, or lead and oakum.

### 2.03 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET (1500 MM) OF BUILDING

- A. Cast Iron Pipe: ASTM A74 extra heavy weight.
  - 1. Fittings: Cast iron.
  - 2. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum.

### 2.04 SANITARY SEWER PIPING, ABOVE GRADE

- A. Cast Iron Pipe: ASTM A74, service weight.
  - 1. Fittings: Cast iron.
  - 2. Joint Seals: ASTM C564 neoprene gaskets, or lead and oakum.
- B. PVC Pipe: ASTM D2729.
  - 1. Fittings: PVC.
  - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

### 2.05 DOMESTIC WATER PIPING, BURIED BEYOND 5 FEET (1500 MM) OF BUILDING

- A. Copper Pipe: ASTM B42, hard drawn.
  - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and bronze.
  - 2. Joints: ASTM B32, alloy Sn95 solder.

### 2.06 DOMESTIC WATER PIPING, BURIED WITHIN 5 FEET (1500 MM) OF BUILDING

- A. Copper Pipe: ASTM B42, hard drawn.
  - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and bronze.
  - 2. Joints: ASTM B32, alloy Sn95 solder.

### 2.07 DOMESTIC WATER PIPING, ABOVE GRADE

- A. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
  - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
  - 2. Joints: ASTM B32, alloy Sn95 solder.
  - 3. Mechanical Press Sealed Fittings: Double-pressed type, NSF 61 and NSF 372 approved or certified, utilizing EPDM, nontoxic, synthetic rubber sealing elements.
    - a. Manufacturers:
      - 1) Apollo Valves: [www.apollovalves.com/#sle](http://www.apollovalves.com/#sle).



- 2) Viega LLC; \_\_\_\_\_: [www.viega.us/#sle](http://www.viega.us/#sle).
- 3) Substitutions: See Section 016000 - Product Requirements.

## 2.08 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
  1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
  2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
  3. Trapeze Hangers: Welded steel channel frames attached to structure.
  4. Vertical Pipe Support: Steel riser clamp.
- B. Plumbing Piping - Drain, Waste, and Vent:
  1. Hangers for Pipe Sizes 1/2 Inch (15 mm) to 1-1/2 Inches (40 mm): Malleable iron, adjustable swivel, split ring.
  2. Hangers for Pipe Sizes 2 Inches (50 mm) and Over: Carbon steel, adjustable, clevis.
  3. Wall Support for Pipe Sizes to 3 Inches (80 mm): Cast iron hook.
  4. Wall Support for Pipe Sizes 4 Inches (100 mm) and Over: Welded steel bracket and wrought steel clamp.
  5. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- C. Plumbing Piping - Water:
  1. Hangers for Pipe Sizes 1/2 Inch (15 mm) to 1-1/2 Inches (40 mm): Malleable iron, adjustable swivel, split ring.
  2. Hangers for Cold Pipe Sizes 2 Inches (50 mm) and Over: Carbon steel, adjustable, clevis.
  3. Hangers for Hot Pipe Sizes 2 Inches (50 mm) to 4 Inches (100 mm): Carbon steel, adjustable, clevis.
  4. Hangers for Hot Pipe Sizes 6 Inches (150 mm) and Over: Adjustable steel yoke, cast iron pipe roll, double hanger.
  5. Wall Support for Pipe Sizes to 3 Inches (80 mm): Cast iron hook.
  6. Wall Support for Pipe Sizes 4 Inches (100 mm) and Over: Welded steel bracket and wrought steel clamp.
  7. Wall Support for Hot Pipe Sizes 6 Inches (150 mm) and Over: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron pipe roll.
  8. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
  9. Floor Support for Hot Pipe Sizes to 4 Inches (100 mm): Cast iron adjustable pipe saddle, locknut, nipple, floor flange, and concrete pier or steel support.
  10. Floor Support for Hot Pipe Sizes 6 Inches (150 mm) and Over: Adjustable cast iron pipe roll and stand, steel screws, and concrete pier or steel support.
  11. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

## 2.09 BALL VALVES

- A. Manufacturers:
  1. Apollo Valves: [www.apollovalves.com/#sle](http://www.apollovalves.com/#sle).
  2. Viega LLC: [www.viega.us/#sle](http://www.viega.us/#sle).
  3. Substitutions: See Section 016000 - Product Requirements.



- B. Construction, 4 Inches (100 mm) and Smaller: MSS SP-110, Class 150, 400 psi (2760 kPa) CWP, bronze or ductile iron body, 304 stainless steel or chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded or grooved ends with union.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that excavations are to required grade, dry, and not over-excavated.

### 3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

### 3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
  - 1. Refer to Section 220719.
- G. Provide access where valves and fittings are not exposed.
- H. Prepare exposed, unfinished pipe, fittings, supports, and accessories for finish painting.
  - 1. See Section 099123 for painting of interior plumbing systems and components.
  - 2. See Section 099113 for painting of exterior plumbing systems and components.
- I. Install valves with stems upright or horizontal, not inverted. Refer to Section 220523.
- J. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
- K. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- L. Pipe Hangers and Supports:
  - 1. Install in accordance with ASME B31.9.



## PLUMBING PIPING

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2. Support horizontal piping as indicated.
3. Install hangers to provide minimum 1/2 inch (15 mm) space between finished covering and adjacent work.
4. Place hangers within 12 inches (300 mm) of each horizontal elbow.
5. Use hangers with 1-1/2 inch (40 mm) minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
6. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
7. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
8. Provide copper plated hangers and supports for copper piping.
9. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

### 3.04 APPLICATION

- A. Use grooved mechanical couplings and fasteners only in accessible locations.
- B. Install unions downstream of valves and at equipment or apparatus connections.
- C. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- D. Install gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.

### 3.05 TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2 inch (10 mm) vertically of location indicated and slope to drain at minimum of 1/4 inch per foot (1:50) slope.
- B. Water Piping: Slope at minimum of 1/32 inch per foot (1:400) and arrange to drain at low points.

### 3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Disinfect water distribution system in accordance with Section 330110.58.
- B. Prior to starting work, verify system is complete, flushed, and clean.

### 3.07 SERVICE CONNECTIONS

- A. Provide new sanitary and storm sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.

### END OF SECTION



## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Sinks.
- B. Drinking fountains.

### 1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary: Owner-furnished fixtures.
- B. Section 123600 - Countertops: Preparation of counters for sinks and lavatories.
- C. Section 221005 - Plumbing Piping.
- D. Section 221006 - Plumbing Piping Specialties.
- E. Section 260583 - Wiring Connections: Electrical characteristics and wiring connections.

### 1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ASME A112.18.1 - Plumbing Supply Fittings; 2018, with Errata.
- C. ASME A112.19.3 - Stainless Steel Plumbing Fixtures; 2017.
- D. NSF 61 - Drinking Water System Components - Health Effects; 2020.
- E. NSF 372 - Drinking Water System Components - Lead Content; 2020.
- F. UL (DIR) - Online Certifications Directory; Current Edition.

### 1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Manufacturer's Instructions: Indicate installation methods and procedures.
- D. Sustainable Design Documentation: Submit appropriate evidence that materials used in potable water systems comply with the specified requirements.
- E. Maintenance Data: Include fixture trim exploded view and replacement parts lists.
- F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.



#### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept fixtures on site in factory packaging. Inspect for damage.
- B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

#### 1.07 WARRANTY

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty for electric water cooler.

### PART 2 PRODUCTS

#### 2.01 GENERAL REQUIREMENTS

- A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

#### 2.02 REGULATORY REQUIREMENTS

- A. Comply with applicable codes for installation of plumbing systems.
- B. Comply with UL (DIR) requirements.
- C. Perform work in accordance with local health department regulations.
- D. Provide certificate of compliance from Authority Having Jurisdiction indicating approval of installation.

#### 2.03 SINKS (SK-1)

- A. Sink Manufacturers:
  - 1. Elkay; Model DRKAD371740LC & DRKAD371740RC.
  - 2. Substitutions: See Section 016000 - Product Requirements.
- B. Double Compartment Bowl with Drinking Fountain: 1; 37-1/4 by 17 by 4 inch (\_\_\_\_\_ by \_\_\_\_\_ by \_\_\_\_\_ mm) outside dimensions 18 gauge, 0.05 inch (1.27 mm) thick, Type 304 stainless steel, self rimming and undercoated, with ledge back drilled for trim.
  - 1. Drain: 2" and 3-1/2 inch (90 mm) crumb cup and tailpiece.

#### 2.04 SINKS (SK-2)

- A. Sink Manufacturers:
  - 1. Dayton; Model D12522.
  - 2. Substitutions: See Section 016000 - Product Requirements.



## PLUMBING FIXTURES

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- B. Single Compartment Bowl: 1; 21 by 15-3/4 by 6-3/8 inch (\_\_\_\_\_ by \_\_\_\_\_ by \_\_\_\_\_ mm) outside dimensions 22 gauge, 0.03125 inch (0.8 mm) thick, Type 302 stainless steel, self rimming and undercoated, with ledge back drilled for trim.
  - 1. Drain: 3-1/2 inch (90 mm) crumb cup and tailpiece.
- C. Supply Faucet Manufacturers:
  - 1. Chicago Faucets; Model 786-GN2FCABCP.
  - 2. Substitutions: See Section 016000 - Product Requirements.
- D. Supply Faucet: ASME A112.18.1; chrome plated combination supply fitting with pop-up waste, water economy aerator with maximum flow of 1.5 gpm laminar flow control , indexed handles.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- B. Verify that electric power is available and of the correct characteristics.
- C. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

#### 3.02 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

#### 3.03 INSTALLATION

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- C. Install components level and plumb.

#### 3.04 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

#### 3.05 CLEANING

- A. Clean plumbing fixtures and equipment.

#### 3.06 PROTECTION

- A. Protect installed products from damage due to subsequent construction operations.
- B. Do not permit use of fixtures by construction personnel.



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C. Repair or replace damaged products before Date of Substantial Completion.

**END OF SECTION**



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Lighting, including lamps.
- B. Wiring devices.
- C. Electrical control systems and interlock wiring.
- D. Wiring for built-in equipment.
- E. Distribution panels and switches.

## 1.02 RELATED WORK

- A. Foundations and pads required for equipment furnished under this division of specifications.
- B. Field painting, except such painting as is required to maintain shop coat painting and factory finish painting.
- C. Flashing and sealing of conduits through outside walls.
- D. Cutting and patching for electrical work, except for errors and omissions under this Division.

## 1.03 QUALITY ASSURANCE

- A. It is understood that the rights and benefits given the Owner by the guarantees found in the technical specifications are in addition to and not in derogation of any rights or benefits found in the special and general provisions of the contract.
- B. Electrical equipment provided under this Division shall be turned over in operating condition. Instruction on further operation and maintenance shall be included in the operating and maintenance instructions.

## 1.04 REFERENCES

- A. Perform work in accordance with standards listed below. Where these specifications are more stringent, they take precedence. In case of conflict, obtain a decision from the Engineer.
  - 1. NFPA-70: National Electrical Code
  - 2. NFPA-101: Life Safety Code
  - 3. New York State Energy Code
  - 4. New York State Building Code
  - 5. Applicable New York State Administrative Code
  - 6. Applicable Town Ordinances.
  - 7. Electric utility rules and regulations.
  - 8. Telephone utility rules and regulations.

## 1.05 PERMITS AND FEES

- A. The Contractor shall obtain and pay for all permits, construction charges, fees, licenses, certificates, inspections and other use charges required in connection with the work.
- B. Such permits include, but are not limited to:
  - 1. Transportation and disposal of debris.
  - 2. Temporary Electrical Services and Permanent Electrical Service.



3. Electrical Inspectors, Inc., or a pre-approved electrical inspection agency.

## PART 2 - PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

- A. All materials and equipment used in carrying out these specifications shall have UL listing and label. Specifications and drawings indicate name, type, or catalog numbers of materials and equipment to be used as standards. Proposals shall be based on these standards. Contractor may use materials and equipment equivalent to those specified, subject to Engineer's approval.

## PART 3 - EXECUTION

### 3.01 COORDINATION

- A. Carefully examine specifications, drawings and project site to be thoroughly familiar with items which require electrical connections and coordination. Electrical drawings are diagrammatic and shall not be scaled for exact sizes.
- B. Notify other Contractors of any deviations or special conditions necessary for the installation of work. Interferences between work of various contractors to be resolved prior to installation. Work installed not in compliance with specifications and drawings and without properly checking and coordinating as specified above shall, if necessary, be removed and properly reinstalled without additional cost to the Owner. Engineer to be mediating authority in all disputes arising on project.
- C. Equipment shall be installed in accordance with manufacturer's recommendation. Where conflicts occur between contract documents and these recommendations, a clarification shall be requested of the Engineer for decision before proceeding with such work.
- D. Insofar as it is possible to determine in advance, advise masonry tradesmen to leave proper chases and openings. Place all outlets, anchors, sleeves, and supports prior to pouring concrete or installation of masonry work. Should the Contractor neglect doing this, any cutting and/or patching required to be done is at this Contractor's expense.
- E. FIRE ALARM – For any facilities that utilize an existing fire alarm system, the contractor shall coordinate with the owner and fire alarm monitoring company prior to removing or disabling any devices. It shall be the contractor's responsibility to provide fire watch as per the latest addition of the Fire Code of New York State. The contractor shall provide fire watch for all areas of a facility while occupied and unoccupied when any device or part of the fire alarm system is de-activated or put into "test mode".

### 3.02 CUTTING AND PATCHING

- A. Repair or replace routine damage caused by cutting in performance of work under this Division.
- B. Correct unnecessary damage caused due to installation of electrical work, brought about through carelessness or lack of coordination.
- C. Holes cut through floor slabs to be core drilled with drill designed for this purpose. All openings, sleeves, and holes in slabs to be properly sealed, fire proofed and waterproofed.
- D. Repairs to be performed with materials which match existing materials and to be installed in accordance with appropriate sections of these specifications.



**3.03 TESTS**

- A. On completion of work, installation shall be completely operational and entirely free from ground, short circuits, and open circuits. Perform a thorough operational test in presence of the Engineer. Balance all circuits so that feeders to panels are not more than 10% out of balance between phases with all available load energized and operating. Furnish all labor, materials and instruments for above tests.
- B. Furnish Engineer with a copy of such tests including identification of each circuit and readings recorded, also the main service ground resistance test as described in Section 260526 of these specifications. Test information to include ampere readings of all panels and major circuit breakers, isolation resistance reading of motors and transformers.

**3.04 IDENTIFICATION OF EQUIPMENT**

- A. Properly identify the following:
  - 1. Distribution panels.
  - 2. Disconnect switches.
- B. Use permanently attached black phenolic plates with 1/4-inch white engraved lettering on the face of each, attached with two sheet metal screws.
- C. Panelboard identification plates shall indicate panel by name.

**3.05 INSTALLATION**

- A. The Contractor shall carefully move and replace existing equipment, appliances and all related items, as required to conduct proposed work.
- B. Install and conduct all work per applicable NEC, State and local codes.

**END OF SECTION**



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Electrical demolition.

## 1.02 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Indicate demolition and removal sequence and location of salvageable items; location and construction of temporary work.

## 1.03 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition work, safety of structure and dust control.
- B. Obtain required permits from authorities.
- C. Notify affected utility companies before starting work and comply with their requirements.
- D. Do not close or obstruct egress width to exits.
- E. Do not turn off electric equipment without authorization from Owner.
- F. Conform to procedures applicable when discovering hazardous or contaminated materials.
- G. Obtain a utilities mark-out of all buried underground utilities for telephone, electric, gas, sewer and water, including all customer owned utilities.

## 1.04 SCHEDULING

- A. Schedule Work to coincide with new construction.

## PART 2 - PRODUCTS

## 2.01 NOT USED.

## PART 3 - EXECUTION

## 3.01 EXAMINATION

- A. Verify field circuiting arrangements at Irvington Union Free School District.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on visual field observation. Report discrepancies to the Engineer before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing condition.

## 3.02 PREPARATION

- A. Coordinate utility service outages with Utility Company.



- B. Provide power, wiring and connections to maintain all existing power, control and telemetry systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

### 3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Remove, relocate, and extend existing installations to accommodate new construction, as indicated on drawings.
- B. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.
- D. Repair adjacent construction and finishes damaged during demolition and extension work.
- E. Provide caps and filler plates/plugs for all openings in equipment and enclosures after removal of conduits.
- F. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.
- G. Remove demolished materials from site as work progresses.
- H. Completely remove and dispose of all electrical power, control, and telemetry feeds including conduits, conductors, boxes and supports not scheduled to remain after new construction is tested and operational.
- I. Where existing devices and equipment are called to be removed, Contractor shall maintain circuit continuity to all existing devices and equipment remaining on that circuit. Contractor shall provide all required conduit, conductors and boxes as required.

### 3.04 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment which remain or are to be reused.
- B. Remove temporary work.

### END OF SECTION



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Wires and cables.
- B. In general, the wires and cables included under this Section shall include, but not be limited to, the following:
  - 1. 600V power and control cable
  - 2. Communication cables
- C. All conductors to be continuous from origin to panel or equipment termination without splices.

## 1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.
- B. NECA Standard of Installations.

## 1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.

## 1.04 QUALITY ASSURANCE

- A. Products used in the work of this Section shall be produced by manufacturers regularly engaged in the manufacturing, installing and servicing of similar items with a history of successful production acceptable to the Engineer as specified herein and in accordance with the General Conditions.
- B. Contractor shall submit the following information pertaining to the manufacturer(s):
  - 1. Complete literature, performance, and technical data describing the proposed equipment and listing of items made by the manufacturer.
  - 2. Location of closest service office from which this equipment shall be serviced.
  - 3. Location of closest parts inventory for item installation.

## 1.05 COORDINATION

- A. Coordination:
  - 1. Coordinate wire and cable required with the equipment being furnished by others for the satisfactory operation of the equipment or system.
  - 2. Review installation procedures under other sections and contracts and coordinate them with the work specified herein.
  - 3. Notify other prime contractors in advance of the installation of the work included to provide them with sufficient time for installation and coordination of interrelated items that are included in their contracts and that must be installed in conjunction with the work included in this Section.

## 1.06 PROJECT CONDITIONS

- A. Verify that embedded conduit, in masonry and concrete, is installed as shown on the Drawings prior to the work being enclosed by others.
- B. The Contractor shall be present at all concrete pours made by the General Contractor.
- C. Conductor sizes are based on copper at 75°C.



- D. Wire and cable routing shown on Drawings is approximate unless dimensioned or specifically called for such as where conduit is to be embedded in concrete or masonry. Route wire and cable as required to meet project conditions and shall be routed above ceilings, directly under joists, in pipe trenches, where available, and in masonry. Where exposed conduit is permitted, it shall be run to maximize wall space.
- E. Field verify destination location to determine cable routing.
- F. Where wire and cable routing is not shown for proposed destination, determine exact routing and lengths required. Routing shall be reviewed with the Engineer.

## PART 2 - PRODUCTS

### 2.01 CONDUCTORS

- A. Install products in accordance with manufacturer's recommendations.
- B. Single copper conductors with 600-volt insulation.
- C. Minimum size of feeder conductors and grounds shall be No. 12 AWG.
- D. Insulation: No. 12 AWG and No. 10 AWG, provide ANSI/NFPA 70, Type THWN-2.
- E. Use solid conductor for feeder and branch circuits, 10 AWG and smaller.
- F. All conductors shall include complete set of manufacturer's markings for insulation and conductor size.
- G. Manufacturers shall be ANACONDA, TRIANGLE, ROME, or approved equal.
- H. Provide white colored neutral conductors; provide black, color coded phase conductors; provide green colored ground conductors.

### 2.02 4-PAIR CATEGORY 6 UNSHIELDED TWISTED PAIR CABLE

- A. Manufacturers: Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:
  - 1. Belden Corporation, Carmel, IN (800) 246-2673.
  - 2. Avaya, Basking Ridge, NJ (800) 344-02232.
  - 3. Berk-Tek, Incorporated, New Holland, PA (800) 237-5835.
  - 4. CommScope, Hickory, NC (800) 982-1708.
  - 5. Draka Comteq, Franklin, MA (888) 541-7100.
  - 6. General Cable, Highland Heights, KY (800) 424-5666.
  - 7. Mohawk/CDT Leominster, MA (978) 537 9961.
  - 8. NORDX/CDT, Worcester, MA (800) 331-0779.
  - 9. Superior Essex, Atlanta, GA. (800) 685-4887.
  - 10. Tyco Electronics, Harrisburg, PA (800) 522-6752.
- B. Conductors: 4 twisted pair - 24 AWG, solid copper w/ RJ-45 connector ends
  - 1. Individually insulated plenum rated conductors under common plenum rated sheath unless entire cable is installed within conduit/EMT or if area where cable is installed is not considered a return air plenum according to any applicable codes.
  - 2. Complies with individual characteristics established in ANSI/TIA/EIA-568-B, and all addendums for Category 6 cable performance specification.
  - 3. Overall Nominal Diameter: .365 x .165 in.



4. Nominal Impedance: 100 ohms plus or minus 15 percent.
  5. Certified capable of performing to minimum 350 MHz.
- C. Mechanical Characteristics
1. Operating temperature: -20°C to +80°C
  2. Bulk cable weight: 29 lbs./1000 ft.
  3. Maximum recommended pulling tension: 45 lbs.
  4. Minimum bend radius: 1 in.
- D. Flame test: UL1666 Riser
- E. Electrical Characteristics:
1. Nom. Mutual Capacitance @ 1 KHz 15.0 pF/ft
  2. Maximum Capacitance Unbalance (pF/100 m) 49.2 pF/100 m
  3. Nominal Velocity of Propagation 70 %
  4. Maximum Delay (ns/100 m) 510 @ 100MHz ns/100 m
  5. Maximum Delay Skew (ns/100m) 25 ns/100 m
  6. Maximum Conductor DC Resistance @ 20 Deg. C 9 Ohms/100 m
  7. Maximum DCR Unbalance @ 20 Deg. C 3 %
  8. Max. Operating Voltage - UL 300 V RMS

### 2.03 MECHANICAL CONNECTORS

- A. Conductor tapping connectors shall be BURNDY Servit split bolt, Series KS and KS3, or approved equal.
- B. Split bolt connectors shall use BURNDY Type SC Servit cover on indoor applications.
- C. Terminal lugs shall be BURNDY Universal Terminal Series. Terminal lugs shall be sized for proper ampacity and proper number of conductor holes. Each conductor shall occupy only one hole on a terminal lug.
- D. Conductor tapping connectors for multiple conductors shall be BURNDY Series V-Tap with V-Tap covers, and V-Blok mounting platforms.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. General:
1. Make terminations in accordance with cable manufacturers instructions for the particular type of wire and cable.
  2. Splices are not allowed in the underground duct and manhole systems. If splices are required, the Contractor shall obtain approval in writing from the Engineer prior to splicing.
  3. All splices shall be in made in terminal boxes.
- B. Wire and Cable Sizes: The sizes of wire and cable shall be as shown on the Contract Drawings, or if not shown, as approved by the Engineer. Minimum size wire shall be No. 12 AWG for all power, lighting and receptacle circuits. Wires for control circuits shall be No. 14 AWG minimum. Wire for instrumentation circuits shall not be smaller than No. 16 AWG. If due to field routing the voltage drop exceeds 2.5%, the size of conductors shall be increased such that 2.5% is the maximum voltage drop incurred.
- C. Number of Wires: The number of wires indicated on the Contract Drawings for the various control, indications, and metering circuits were determined for general schemes of control and



for particular indication and metering systems. Coordinate wiring schemes with equipment schematics.

- D. **Wiring Identification:** All wiring shall have a unique wire number and be labeled at both ends. Wire numbers shall correspond with the equipment terminal wire numbers. Where no wire numbers are indicated, the Contractor shall assign wire numbers. Wire numbers shall not be duplicated.
- E. **Cable Identification Tags:** The Contractor shall furnish all labor and materials and affix in a permanent way to each cable in manholes, cable compartments and vaults, junction boxes, pull boxes and points of termination, a laminated plastic tag, bearing clearly printed, the cable number indicated on the Contract Drawings or some other approved identification number or symbol. All cables shall be temporarily tagged with its full ID number immediately after it has been pulled.
- F. **Wiring Supplies:** Only electrical wiring supplies manufactured under high standards of production and meeting the approval of the Engineer shall be used. Friction tape shall be in accordance with ASTM D69.
- G. **Training of Cable:** Furnish all labor and material required to train cables around cable vaults within buildings and in manholes in any outdoor underground duct system. Sufficient length of cable shall be provided in each manhole and vault so that the cable can be trained and racked in an approved manner. In training or racking, the radius of bend of any cable shall be not less than the manufacturer's recommendation. All manhole cables shall be arc and fireproofed.
- H. **Connections at Control Panels, Limit Switches and Similar Devices:**
  - 1. Where stranded wires are terminated at panels, and/or devices connections shall be made by solderless lug, crimp type ferrule or solder dipped.
  - 2. Where enclosure sizes and sizes of terminals at limit switches, solenoid valves, float switches, pressure switches, temperature switches, and other devices make 7-strand, No. 12 AWG, wire terminations impractical, the Contractor shall terminate external circuits in an adjacent junction box of proper size and shall install No. 14 AWG stranded wires to the junction box in a conduit.
- I. **Pulling Temperature:** Cable shall not be flexed or pulled when the temperature of the insulation or of the jacket is such that damage will occur due to low temperature embrittlement. When cable will be pulled with an ambient temperature within a three day period prior to pulling of 40°F or lower, cable reels shall be stored during the three day period prior to pulling in a protected storage with an ambient temperature not lower than 55 degrees F and pulling shall be completed during the work day for which the cable is removed from the protected storage.
- J. **Color Coding:**
  - 1. Conductor jacket shall be color coded as follows:

**AC POWER**

<b>208Y/120 Volt 3 phase (NEC)</b>
Phase A Black
Phase B Red
Phase C Blue



<b>208Y/120 Volt 3 phase (NEC)</b>
Neutral White
Ground Green

2. Equipment Ground - GREEN

3.02 IDENTIFICATION

- A. Identify wire and cable under provisions of Section 260553.
- B. Identify each conductor with its circuit number.

3.03 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Inspect wire and cable for physical damage and proper connection.
- C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.
- D. Field Testing:
  - 1. Wires and cables shall be tested before being connected to motors, devices or terminal blocks.
  - 2. If tests reveal defects or deficiencies, the Contractor shall make the necessary repairs or shall replace the cable as directed by the Engineer, without additional cost to the Owner.
  - 3. All tests shall be made by and at the expense of the Contractor who shall supply all testing equipment.
- E. Continuity Tests: All cables, wires and shields shall be tested for continuity. Testing for continuity shall be by test light or buzzer.
- F. Insulation-Resistance Tests:
  - 1. 600V power and control cables and wires shall be tested for their insulation-resistance values. Test shall utilize a megohmmeter with applied voltage to be 1000VDC for one (1) minute. Insulation-resistance test shall be performed on each conductor with all other conductors grounded. The resistance value shall be 20 megohms or greater.

**END OF SECTION**



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

- A. Grounding electrodes and conductors.
- B. Equipment grounding conductors.
- C. Bonding.

**1.02 REFERENCES**

- A. ANSI/NFPA 70 - National Electric Code.

**1.03 REGULATORY REQUIREMENTS**

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc.

**PART 2 - PRODUCTS****2.01 COMPONENTS**

- A. Ground clamps: OZ ELECTRICAL MANUFACTURING COMPANY, Type "CG", or equal by STEEL CITY or APPLETON.
- B. Raceways, conductors, outlet boxes, pull and junction boxes to be furnished in accordance with applicable sections of these specifications.
- C. Wire: Copper, sized to meet NFPA 70 requirements.

**PART 3 - EXECUTION****3.01 INSTALLATION**

- A. General:
  - 1. Clean all conductive surfaces on equipment to be grounded, to assure good electrical continuity.
  - 2. Effectively bond all grounding conductors to grounding rod electrodes, equipment enclosures and ground busses.
  - 3. Locate all grounding attachments away from areas subject to physical damage. Provide protective covering as required.
- B. Feeder/Branch Circuits:
  - 1. All circuits shall have a separate green grounding conductor in conduit sized in accordance with NFPA 70. Minimum size of conductor shall be No. 12 AWG.
  - 2. Flexible conduit will not be approved as achieving continuity of ground. All flexible conduit to have a jumper wire sized to ampacity of branch breaker and to be connected to conduit system on both ends; this applies to fixtures, motors, controls, etc.

**END OF SECTION**



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. System of supporting devices and hangers for support or bracing for conduit, electrical equipment, safety switches, fixtures, panelboards, outlet boxes, junction boxes and cabinets.

## 1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.

## 1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc.

## PART 2 - PRODUCTS

## 2.01 EQUIPMENT REQUIREMENTS

- A. Provide appropriate corrosion-resistant supporting devices and hangers for electrical equipment, as manufactured by ERICO PRODUCTS, INC., CADDY FASTENERS, STEEL CITY, MINERALLAC or equivalent.
  - 1. "Z" purlin clips.
  - 2. Conduit clips.
  - 3. Beam clamps (universal and vertical flange).
  - 4. Beam clamps (set screw type).
  - 5. Combination push-in conduit clips.
  - 6. Combination conduit hanger clamps.
  - 7. Flexible conduit clips.
  - 8. Special combination conduit clips.
  - 9. One hole steel straps.
  - 10. Conduit hangers.
- B. Provide materials, sizes and types of anchors, fasteners and supports to carry the loads of equipment, wire in conduit and conduit.

## 2.02 CHANNEL SUPPORT SYSTEM

- A. Channel systems and supports shall be manufactured by KINDORF/THOMAS & BETTS, or approved equal.
- B. Channels shall be 1-1/2" x 1-1/2".
- C. Channels and all associated accessories and bolts shall be hot dipped galvanized.
- D. Channels shall have 9/16" bolt holes on 1-1/2" centers.
- E. Provide end caps for all channels.



## PART 3 - EXECUTION

## 3.01 INSTALLATION

- A. Secure conduits to within 3 feet of each outlet box, junction box, cabinet, fitting, etc., and at intervals not to exceed 10 feet in accordance with currently effective edition of the National Electric Code.
- B. In seismic zones, support conduits 1 inch and smaller at 6 foot intervals.
- C. Install clamps secured to structure for feeder and other conduits routed against structure. Use drop rods and hangers to support conduits run apart from the structure.
- D. Provide and install suitable angle iron, channel iron or steel metal framing with accessories to support or brace electrical equipment including safety switches, fixtures, panelboards, etc.
- E. Paint all supporting metal not otherwise protected, with rust inhibiting primer and then with a finish coat if appropriate to match the surrounding metal surfaces. Prepainted or galvanized support material is not required to be painted or repainted.
- F. Do not use chains, perforated iron, baling wire or tie wire for supporting conduit runs. Use of clips to support conduit to top of t-bar ceiling grid will not be permit-ted.
- G. Obtain permission from Engineer before drilling or cutting structural members.
- H. Install surface mounted cabinets and panelboards with a minimum of four anchors.
- I. Do not fasten supports to pipes, ducts, mechanical equipment and conduit.
- J. Install products in accordance with manufacturer's instructions.

**END OF SECTION**



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Conduit system with associated couplings, connectors and fittings. Conduits to be mechanically and electrically continuous from outlet to outlet and from outlets to cabinets, pull or junction boxes.
  - 1. Conduit Use - Electrical Metallic Tubing (EMT) Conduit:
    - a. All interior circuits above ground.
  - 2. Conduit Use - Metal Clad (MC) Cable:
    - a. All 15 and 20 amp branch circuits concealed in walls or ceilings.
  - 3. J-Hooks
    - a. For use above finished ceilings for telephone, PA, CAT 6 data and fire alarm cable only.
- B. Device Boxes: Provide each fixture switch, receptacle and other wiring device with a box of appropriate size and depth for its particular location use unless indicated otherwise.
- C. Pull boxes, junction boxes and wire troughs

## 1.02 REFERENCES

- A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
- B. ANSI/NFPA 70 - National Electric Code.
- C. NECA Standard of Installation.
- D. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
- E. NEMA TC 3 - PVC Fittings for use with Rigid PVC conduit and tubing.
- F. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.
- G. ANSI/NEMA OS1 - Sheet-steel outlet boxes, device boxes, covers and box supports.
- H. NEMA 250 - Enclosures for electrical equipment (1000 volts maximum).

## 1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Working Drawings:
  - 1. Prior to equipment submission, submit a list of proposed manufacturers with the products they produce proposed for the contract.
  - 2. Manufacturer's catalog cuts for the conduit, boxes, fittings and supports proposed for use.
  - 3. Construction details of conduit racks and other conduit support systems with seismic restraint details and calculations signed by a licensed Engineer.
  - 4. Scaled working drawings showing proposed routing of all conduits, inclusive of conduits routed above grade on exterior support structures, embedded in structural concrete and conduits directly buried in earth. Drawings shall show locations of pull and junction boxes and all penetrations in walls and floor slabs.



#### 1.04 REGULATORY REQUIREMENTS

- A. Furnish products listed and classified by Underwriters Laboratories, Inc.
- B. Conform to requirements of ANSI/NFPA 70.

#### 1.05 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839.
- B. Accurately record actual routing of all conduits.

#### 1.06 FIELD SAMPLES

- A. Provide under provisions of Section 014500.
- B. Provide field sample of conduit two each at 2 feet in length.
- C. Provide field sample of expansion/deflection fitting, two each.

#### 1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, protect, and handle products in accordance with manufacturers' recommendations.
- B. Accept conduit on site. Inspect for damage.
- C. Protect conduit from corrosion and entrance of debris by storing abovegrade. Provide appropriate covering.

#### 1.08 PROJECT CONDITIONS

- A. Verify all conduit routings by field measurements.
- B. Verify routing and termination locations of conduit prior to rough-in.
- C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system. Provide all required sweeps, boxes and fittings.

### PART 2 - PRODUCTS

#### 2.01 ELECTRICAL METALLIC TUBING (EMT)

- A. Electrical metallic tubing shall be WHEATLAND, TRIANGLE, REPUBLIC, or approved equal.
- B. Associated couplings, connectors and fittings shall be as manufactured by THOMAS & BETTS CORP., O.Z. GEDNEY CO., EFCOR, or approved equal. Catalog numbers used below are those of THOMAS & BETTS CORP. based on 3/4-inch size and are considered standards by which equivalents are to be judged.
- C. EMT connectors shall be TC-2125C compression type with threaded locknut. Set screw connectors will not be acceptable.
- D. EMT couplings shall be TK-2125C compression type. Set screw connectors will not be acceptable.



## 2.02 METAL CLAD CABLE (MC)

- A. Metal clad cable shall be manufactured by BICCGENERAL or approved equal.
- B. Associated couplings, connectors and fittings shall be as manufactured by THOMAS & BETTS CORP., O.Z. GEDNEY CO., EFCOR or approved equal.
- C. Conductors shall be types THHN and THWN. Ground wire shall be sized as per NEC with green THHN/THWN insulation. All conductors shall be cabled and wrapped in polyester tape. All conductors shall be rated for 600 VAC.
- D. Armor material shall be Aluminum Interlocked Armor.

## 2.03 J-HOOKS

- A. TO BE USED ABOVE FINISHED CEILING ONLY. FOR TELEPHONE, PA, CAT 6 DATA AND FIRE ALARM CABLE ONLY. ALL EXPOSED TELEPHONE, PA, CAT 6 DATA AND FIRE ALARM CABLE SHALL BE IN CONDUIT.
- B. Erico Caddy HP J. Hook Series or approved equal.
- C. Provide wire retainers for all.
- D. Provide mounting hardware and accessories as required.
- E. Spacing of J-Hooks and supports shall not exceed 5'-0" on center.

## 2.04 OUTLET AND DEVICE BOXES

- A. Acceptable Manufacturers: Raco, General Electric or approved equal.
- B. Sheet Metal Outlet Boxes - All concealed boxes shall be NEMA OS1, galvanized steel:
  - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported. Provide 1/2" male fixture stubs where required.
- C. Concrete Ceiling Boxes: Concrete type.
- D. Cast Boxes: All exposed surface mounted boxes shall be NEMA FB1, Type FD, cast fer alloy. Provide gasketed cover by box manufacturer.

## 2.05 JUNCTION BOXES

- A. Acceptable Manufacturers: RACO, GENERAL ELECTRIC or approved equal.
- B. Sheet metal boxes: NEMA OS1, galvanized steel.
- C. Covers: Galvanized steel.

## 2.06 WIRE TROUGH

- A. Wireways shall be manufactured by Square D, Class 526, rain tight trough or approved equal.
- B. Wireway shall be completely enclosed with removable covers.
- C. Construction: 16 Gauge Galvanized Steel. 8-inch and 12-inch wire trough shall be 14-gauge galvanized steel.



- D. Finish: ANSI-49 epoxy paint applied by cathodic electro-deposition paint process over a corrosion resistant phosphate preparation.
- E. UL listed.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION OF CONDUITS

- A. Minimum size of conduits shall be 3/4-inch.
- B. Conduit joints shall be cut square, threaded, reamed smooth, and drawn up tight so conduit ends will butt in couplings, connectors and fittings.
- C. All threaded conduits and fittings shall have KOPR-SHIELD compound applied to all threads prior to assembly.
- D. Make bends or offsets with standard ells or field bends with an approved bender.
- E. Run concealed conduits in direct line with long sweep bends or offsets. Run exposed conduits parallel to and at right angles to building lines. Group multiple conduit runs in banks.
- F. Secure conduits to all boxes and cabinets with double locknuts and bushings so system will be electrically continuous from service to all outlets.
- G. Install conduit in accordance with NECA Standard of Installation.
- H. Cap ends of conduits to prevent entrance of water and other foreign material during construction.
- I. Complete all conduit systems before pulling conductors.
- J. Support conduits under provisions of Section 260529.
- K. Provide approved expansion joints or fittings and bonding jumpers where conduits in concrete pass through building expansion joints.
- L. Provide cable supports in conduits rising vertically in accordance with the National Electric Code, Article 300-19.
- M. Provide No. 12 AWG copper pull wires or nylon cord in all empty conduits. Steel wire not acceptable as pull wire.
- N. Install conduit to preserve fire resistance rating of partitions and other elements.
- O. Ground and bond conduit under provisions of Section 260526.
- P. Where neither length of conduit can be rotated, ERICKSON couplings Series 676 shall be used.
- Q. In areas where enclosed and gasketed fixtures and weatherproof devices are specified, where rigid conduit enters a sheet metal enclosure, junction box and outlet box, and not terminated in a threaded hub, a steel, or malleable iron nylon insulated bullet hub, complete with recessed sealing "O" ring, shall be used, Series 370-379 . DO NOT use die cast material.
- R. In concrete slabs block up conduit from forms and securely fasten in place. All conduits in slabs shall be installed below concrete slab.



- S. Where conduits running overhead pass through building expansion joints, install flexible liquid tight conduit of same size with sufficient slack to allow conduits on either side of expansion joint to move a minimum of 3-inches in any direction. Provide supports as required on each side of expansion joint, all in accordance with seismic requirements of specific area.
- T. Failure to route conduit through building without interfering with other equipment and construction shall not constitute a reason for an extra charge. Equipment, conduit and fixtures shall fit into available spaces in building and shall not be introduced into building at such times and manner as to cause damage to structure. Equipment requiring servicing shall be readily accessible.
- U. Arrange supports to prevent misalignment during wiring installation.
- V. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- W. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.
- X. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- Y. Do not attach conduit to ceiling support wires.
- Z. Arrange conduit to maintain headroom and present neat appearance.
- AA. Route exposed conduit parallel and perpendicular to walls.
- AB. Route conduit installed above accessible ceilings parallel and perpendicular to walls.
- AC. Route conduit in and under slab from point-to-point.
- AD. Do not cross conduits in slab.
- AE. Maintain adequate clearance between conduit and piping.
- AF. Maintain 12-inch clearance between conduit and surfaces with temperatures exceeding 104°F (40°C).
- AG. Bring conduit to shoulder of fittings; fasten securely.
- AH. Use conduit hubs with sealing locknuts to fasten conduit in damp and wet locations.
- AI. Install no more than equivalent of three 90-degree bends on interior locations between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2-inch size.
- AJ. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- AK. Do not use dissimilar strap or clamp supports. Provide dielectric tape, fittings, straps, and bushings where dissimilar metals are used.
- AL. Where fittings for liquid-tight flexible conduit are brought into an enclosure with a knockout, a gasket assembly, consisting of one piece "O" ring, with a Buna-R sealing material, Series 5200, shall be installed on outside of box. Fittings shall be made of either steel or malleable iron only, and shall have insulated throats or insulated bushings.



- AM. A copper ground wire sized in accordance with NEC shall be installed on the inside of the conduit as a jumper around flexible conduit to assure a continuity of ground.
- AN. Install a copper jumper across all flexible conduit including lighting fixtures, controls and other utilization equipment.
- AO. Install liquid-tight flexible conduit in such a manner as to prevent liquids from running on surface toward fittings.
- AP. Allow sufficient slack conduit to reduce the effect of vibration.
- AQ. Complete all conduit systems before pulling the conductors.
- AR. Support in accordance with requirements of National Electric Code.

### 3.02 INSTALLATION OF BOXES

- A. Install boxes concealed in finished walls.
- B. Locate boxes to prevent moisture from entering or accumulating within them.
- C. Support boxes independently of conduit, as required by the National Electric Code.
- D. Provide 4" x 1-1/2" octagonal, 4" x 1-1/2" square or 4" x 2-1/8" square ceiling outlet boxes.
- E. Where required to hang a specific fixture, provide a fixture stud of the no-bolt, self-locking type on ceiling outlets.
- F. Provide 2-1/2" x 3-3/4" one gang masonry boxes for switches and receptacles installed concealed in concrete block walls. For increased cubic capacity, provide 3-1/2" x 3-3/4" one gang masonry boxes. Where more than two conduits enter the box from one direction, provide 4" square boxes with square cut device covers not less than 1" deep specifically designed for this purpose. Use round edge plaster rings only if the block walls are to be plastered. Use sectional or gang-type outlet boxes only in drywall construction.
- G. Provide 4-11/16" square outlet boxes with square cut device corners for block walls or round edge plaster rings for plastered walls for telephone outlets. Single gang device boxes are not acceptable.
- H. Provide fittings with threaded hubs for screw connections and with the proper type covers for switches and receptacles served by exposed conduit. Use pressed steel outlet only for ceiling fixture outlets.
- I. Provide condulets with threaded hubs and covers and with proper configurations for all changes of direction of exposed conduits. Standard conduit ells may be used if they do not interfere or damage or mar the appearance of the installation.
- J. Use boxes of sufficient cubic capacity to accommodate the number of conductors to be installed, in accordance with the National Electric Code.
- K. Effectively close unused openings in boxes with metal plugs or plates.
- L. Set boxes so that front edges are flush with finished surfaces.
- M. Support boxes from structural members with approved braces.



- N. Install blank device plates on outlet boxes left for future use.
- O. Provide bushings in holes through which cords or conductors pass.
- P. Install boxes so that the covers will be accessible at all times.
- Q. Electrical boxes may be installed in vertical fire resistive assemblies classified as fire/smoke and smoke partitions without affecting the fire classification, provided such openings occur on one side only in each framing space and that openings do not exceed 16 square inches. All clearance between such boxes and the gypsum board shall be completely filled with joint compound or approved fire-resistive compound. The wall shall be built around outlet boxes larger than 16 square inches so as not to interfere with the wall rating.

### 3.03 INSTALLATION OF PULL BOXES, JUNCTION BOXES AND WIRE TROUGHS

- A. Provide junction boxes as shown on Drawings and otherwise where required, sized according to number of conductors in box or type of service to be provided. Minimum junction box size 4-inch square and 2-1/8-inches deep. Provide screw covers for junction boxes.
- B. Install boxes in conduit runs wherever necessary to avoid long runs or too many bends. Do not exceed 100-foot runs without pull boxes. Install pull boxes at all 90-degree bends.
- C. Rigidly secure boxes to walls or ceilings. Conduit runs will not be considered adequate support.
- D. Install boxes with covers in accessible locations. Size boxes in accordance with the National Electric Code.
- E. Do not install pull boxes or junction boxes for joint use of line voltage and signal or low voltage controls unless all conductors are insulated for the highest voltage being used in the same box.

### 3.04 CONDUIT LOCATIONS

- A. Route all conduit concealed in walls or above finished ceilings. Provide boxes and conduits concealed in walls for all power and controls.
- B. Surface mounted conduits will only be allowed in storage rooms and electrical/mechanical rooms. Surface mounted conduits shall only be permitted for vertical runs. All horizontal runs shall be installed above finished ceilings.
- C. All conduit and wiremold shall be primed and painted to match existing adjacent wall color.
- D. J-Hooks are only permitted to be used above finished ceilings for telephone, PA, CAT 6 data and fire alarm cable.

### END OF SECTION



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Nameplates and labels.
- B. Wire and cable markers.
- C. Conduit markers.

## 1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

## 1.03 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide catalog data for nameplates, labels and markers.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Underwriters Laboratories, Inc. Include instructions for storage, handling, protection, examination, preparation and installation of product.

## 1.04 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

## PART 2 - PRODUCTS

## 2.01 NAMEPLATES AND LABELS

- A. Nameplates: Engraved three-layer laminated plastic, white letters on black background.
- B. Locations:
  - 1. Distribution panelboards.
- C. Letter Size:
  - 1. Use 1/4 inch (6 mm) letters for identifying all control pilot lights.
- D. Labels: Embossed adhesive tape, with 3/16" (5mm) white letters on black background. Use for identifying existing equipment, distribution panels, switchboards, disconnect switches, and individual electrical devices.

## 2.02 WIRE MARKERS

- A. Manufacturers:
  - 1. 3M ELECTRICAL SPECIALTY DIV., Product Scotch Code.
  - 2. THOMAS & BETTS CORP., Product E-Z Code.
  - 3. Substitutions shall be permitted only after receiving written approval from the Engineer.
- B. Description: Epoxy film tape type wire markers.



- C. Locations: Each conductor at panelboards, auxiliary gutters, pull boxes, outlet and junction boxes, circuit breakers and each load connection.
- D. Legend:
  - 1. Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.
  - 2. Control Circuits: Control wire number indicated on interconnection diagrams on drawings.

### 2.03 CONDUIT MARKERS

- A. Manufacturers:
  - 1. THOMAS & BETTS CORP.
  - 2. Substitutions shall be permitted only after receiving written approval from the Engineer.
- B. Description: Self-sticking vinyl; black letters on orange background.
- C. Location: Furnish markers for each conduit longer than 6 feet (1.8 m).
- D. Spacing: 20 feet (6 m) on center.

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Degrease and clean surfaces to receive nameplates and labels.

### 3.02 APPLICATION

- A. Install nameplate and label parallel to equipment lines.
- B. Secure nameplate to equipment front using screws, rivets or adhesive.
- C. Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.
- D. Apply conduit markers at 20 foot (6 m) intervals.
- E. Identify underground conduits using underground warning tape. Install one tape per trench at 3 inches (75 mm) below finished grade.

### 3.03 ELECTRICAL EQUIPMENT IDENTIFICATION

- A. The Contractor shall identify all existing circuits in existing distribution panels, switchboards and disconnect switches to remain.
- B. Label all circuits identifying the load served including all individual circuit breakers.
- C. Label all new circuit breakers and switches used for new feeder and branch circuits.
- D. Contractor shall furnish a minimum of 5 custom engrave three-layer laminated plastic labels with up to 20 words per label as directed by the engineer/owner in addition to the required labels for all pilot devices, switches, controls and timers.

## END OF SECTION



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Distribution panelboards.

## 1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.
- B. NECA Standard of Installation.
- C. NEMA AB1 - Molded Case Circuit Breakers.
- D. NEMA PB1 - Panelboards.
- E. NEMA PB1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.
- F. NEMA ICS2 - Industrial Control Devices, Controllers and Assemblies.
- G. NEMA KS1 - Enclosed Switches.

## 1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, and circuit breaker arrangement and sizes.

## PART 2 - PRODUCTS

## 2.01 MANUFACTURERS

- A. New Panelboards
  - 1. Panelboards shall be manufactured by Siemens.
  - 2. Approved equal.

## 2.02 PANELBOARD REQUIREMENTS

- A. Provide panelboards of circuit breaker, dead-front safety type, UL labeled, and meeting all applicable requirements of the National Electrical Manufacturers Association.
- B. Provide panelboards with lugs (both main lugs and branch circuit lugs) suitable and UL approved for both aluminum and copper conductors.
- C. Provide electrically isolated neutral bars.
- D. Provide separate ground bars complete with lugs or connectors on bar.
- E. Provide key operated door and door lock. Door shall prevent access to operate circuit breakers.
- F. Provide panelboards with sequence phased bus bars or distributed phase bussing for voltage and phase as indicated on drawings.
- G. Refer to drawings for numbers of branch circuits, their ratings, number of poles, arrangements, etc.



- H. Provide typed circuit directory cards.
- I. Provide front filler plates for unused breaker knockouts.
- J. Refer to drawings for Ratings and Features.
- K. All bus bars, including ground bars shall be tin-plated copper.
- L. All circuit breakers shall be bolt-on type.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. Ground separate ground bars to panel boxes and to the main service entrance ground bus with a code-sized grounding conductor installed in the same conduit as the phase and neutral conductors under provisions of Section 260526.
- B. Install all circuits using a common neutral bus bay in accordance with the National Electric Code. Balance all circuits to achieve not greater than 7% unbalanced neutral current in panel feeders.
- C. Provide six circuit breaker handle lock-on devices for each lighting and miscellaneous power panelboard for installation by the contractor on circuits as directed by the Engineer to prevent unauthorized personnel from turning off circuits to controls, unit heaters, autodial alarm system, etc. Provide spare lock-on devices over to the Engineer.
- D. Install panelboards in accordance with NEMA PB 1.1.
- E. Install panelboards plumb.
- F. Height: 6 feet (2 m) to top of panel board.
- G. Provide typed circuit directory for each branch circuit panelboard. Handwritten circuit directory cards will not be accepted. Revise directory to reflect circuiting changes required to balance phase loads.
- H. Provide a typed circuit directory in accordance with NEC sections 110.22 and 408.4. Circuits shall be labeled with detailed information describing the switches function and equipment location.
- I. For all existing circuits terminated to a new panelboard, contractor shall trace out and update the circuit directory in accordance with NEC sections 110.22 and 408.4. Include all costs for this work in base bid.
- J. Revise directory to reflect circuiting changes required to balance phase loads.
- K. Provide engraved plastic nameplates under the provisions of Section 260553.

### 3.02 FIELD QUALITY CONTROL

- A. Maintain proper phasing for multi-wire branch circuits.
- B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses.



**END OF SECTION**



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Switches, receptacles, thermostats, device plates and other wiring devices as indicated on Drawings.

## 1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.
- B. NEMA WD1 - General Purpose Wiring Devices.

## 1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Provide manufacturer's catalog information showing dimensions, colors and configuration.

## 1.04 REGULATORY REQUIREMENTS

- A. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

## PART 2 - PRODUCTS

## 2.01 SWITCHES

- A. Manufacturers: HUBBELL, BRYANT, GENERAL ELECTRIC.
- B. Single pole, 20 amp, 120/277 VAC, NEMA WD-1, heavy duty, UL20.
- C. Device Plate: Stainless steel.

## 2.02 RECEPTACLES

- A. Manufacturers: HUBBELL, BRYANT, GENERAL ELECTRIC.
- B. 20 amp, 125 VAC, NEMA WD-1, heavy duty.
- C. 20 amp, 125 VAC, NEMA WD-1, heavy duty, ground fault circuit interrupter.
- D. Duplex type.
- E. Device Plate: Stainless steel.

## 2.03 TELEPHONE/DATA OUTLETS

- A. Provide combination telephone/data jacks compatible with RJ-45 and RJ-11 cable connections.
- B. Provide "Decora" type with matching vinyl cover plate.
- C. Colors shall be selected by the Owner.



## PART 3 - EXECUTION

## 3.01 INSTALLATION

- A. Mounting:
  - 1. Mount all switches 46-inches above finished floor to center line of switch unless noted otherwise.
  - 2. Mount all receptacles 18-inches above finished floor to center line of receptacle unless noted otherwise.
  - 3. Install switches with OFF position down.
- B. Polarity: Properly wire all receptacles so that the hot wire, the neutral wire and the ground wire connect to the proper terminal on all receptacles.
- C. Grounding: Install all devices in boxes specified under Section 260533 and install a No. 12 green ground wire from device grounding terminal to the outlet box in accordance with the National Electric Code.
- D. Install device plates on switch, receptacle and blank outlets in full contact with wall surface.
- E. Provide new SO cord for all chemical pumps and install plug end to match receptacle.

## 3.02 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify that each receptacle device is energized.
- D. Test each receptacle device for proper polarity.
- E. Test each GFCI receptacle device for proper operation.

**END OF SECTION**



## PART 1 - GENERAL

## 1.01 SECTION INCLUDES

- A. Interior and exterior luminaires and accessories.
- B. Emergency lighting and units.

## 1.02 REFERENCES

- A. ANSI C78.379 - Electric Lamps - Incandescent and High-Intensity Discharge Reflector Lamps - Classification of Beam Patterns.
- B. ANSI C82.1 - Ballasts for Fluorescent Lamps - Specifications.
- C. ANSI C82.4 - Ballasts for High-Intensity Discharge and Low Pressure Sodium Lamps (Multiple Supply Type).
- D. NEMA WD 6 - Wiring Devices - Dimensional Requirements.
- E. NFPA 70 - National Electric Code (2014).
- F. NFPA 101 - Life Safety Code.
- G. LM-79-08, IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products
- H. LM-80-08, IESNA Approved Method for Measuring Lumen Maintenance of LED Light Sources
- I. NYECC and ASHRAE 90.1.
- J. UL924: Emergency Lighting and Power Equipment; Current Edition. Including All Revisions.

## 1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
- C. Product Data: Provide dimensions, ratings, performance data and installation instructions.
- D. Submit manufacturer's installation instructions. Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation and installation of Product.
- E. All foot candle calculations and photometrics must be provided with substitute products. Photometrics shall include a room by room analysis showing walls, room names and room numbers. Calculation points shall be 2 feet on center, measured at 30" above the floor. Maintained foot candle levels shall meet or exceed those listed in Section 2.03A of specification 265000. On each drawing, provide a table showing the Room Name, Room Number, Maximum Light Level, Minimum Light Level, Average Light Level, Min:Max Ratio and, IES File Model Number.
- F. All substitute LED light fixtures and LED retrofit lighting kits must be Design Lights Consortium (DLC) qualified.



- G. All substitute LED replacement lamps must be listed by Energy Star as Certified Light Bulbs.

#### 1.04 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc.

#### 1.05 EXTRA PRODUCTS

- A. Section 017800 - Closeout Submittals.
- B. LED Fixtures: At completion of installation, deliver to Owner.
  - 1. One (1) of each light fixture type as shown on the light fixture schedule.

### PART 2 - PRODUCTS

#### 2.01 LIGHTING UNITS

- A. Refer to LIGHTING FIXTURE SCHEDULE on drawings for fixture manufacturer, catalog number, and fixture description.
- B. Provide electronic energy saving drivers. Where dimming is shown on drawings, provide dimmable type drivers.
- C. All fixtures equipped with emergency battery packs shall have test light and switch accessible and visible from the room floor.
- D. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes and listed and labeled as complying with UL 924.

#### 2.02 LIGHTING FIXTURE NOTES

- A. MOUNTING: Electrical Contractor is responsible for reviewing all mounting arrangements prior to ordering any products. Electrical Contractor is responsible for ordering all of the proper fixtures, mounting hardware and miscellaneous fasteners to complete project. Fixtures to be secured to the structure from a minimum of two points, at opposing ends of the fixture when ceiling recessed or surface mounted. Four points shall be secured where necessary for the fixture to be parallel and tight to underside of ceiling. All recessed fixtures to fit tight to ceiling to eliminate all light leaks. Trim kits, when not secured internally to fixture, shall be secured to structure at a minimum of two points.
- B. MOUNTING: Prior to submitting and ordering any light fixture, Contractor is responsible for verifying adequate mounting clearances for all light fixtures that are to be recessed into a grid type ceiling. Where new ceilings are to be installed, contractor shall coordinate with ceiling installers for exact mounting heights and required mounting spaces.
- C. FINISHES: All exposed portions (permanent or adjustable) of fixtures to be finished by the manufacturer in a finish as specified.
- D. Fixtures shall come pre-assembled and complete with all sockets (incandescent to be spring supported), lamp ends, ballasts, transformers, fixture ends, trim rings, plates, and low density mounting kits (as required) for a complete installation.
- E. LENSES:



1. Minimum 0.125" thick and to be virgin acrylic.
  2. Low voltage - Tempered glass, to enclose lamp.
- F. LAMPS: SYLVANIA, PHILLIPS or GENERAL ELECTRIC, as selected by the Electrical Contractor. Note, all lamps for one project to be furnished by the same manufacturer unless otherwise specified. At the end of the project, the Electrical Contractor shall turn over to the Owner one lamp envelope from each type installed. The Contractor shall be responsible for replacing all lamps which burn out during construction and up to ninety (90) days after Owner occupancy of the building.
- G. VOLTAGE: As noted on the LIGHTING FIXTURE SCHEDULE. Contractor is responsible for field verifying available voltage(s) and ordering fixtures, ballasts, and transformers accordingly.
- H. ORDERING: It is solely the responsibility of the Contractor to order fixtures, lamps, mounting brackets and accessories so that the fixtures will be installed and operating upon Owner Occupancy opening. Contractor is responsible for all delays because of his/her lack of effort to order the products in a timely manner.
- I. SHIPPING: The light fixture manufacturer shall mark the fixture type as indicated on the contract drawings and/or shop drawings on the respective carton when shipping luminaries. The Contractor shall be responsible for checking each carton immediately upon receipt for verification that fixtures are undamaged and no contents are missing. All discrepancies must be reported to shipper and manufacturer immediately; otherwise the Contractor shall be responsible for items which are lacking or damaged.

### 2.03 SED REQUIRED LIGHT LEVELS

- A. Requirements for maintained horizontal foot-candles for each location within each building are listed below. Confirm designated use of each "Location" with owner and engineer prior to beginning calibration work: **Light levels shall not drop below SED standard guidelines as shown in chart.**

Location	Required Maintained Horizontal Foot-Candles
Classrooms, study halls, and lecture rooms [on desks and tables]	50
Offices [on desks]	50
Libraries [on desks and tables]	30
Libraries [book stacks]	50
Music rooms [on work]	40
Sewing rooms, drafting rooms, home economics [on work]	50
Shops, laboratories, and art rooms [on work]	50
Computer Rooms [on work]	50
Gymnasiums and playrooms	30
Cafeterias	40
Auditoriums	10
Conference Rooms	30
Reception Areas	20
Locker rooms and toilets	10

- B. Contractor shall program all fixtures as per district requirements.



- C. Contractor shall calibrate fixtures as per district requirements.

#### 2.04 EMERGENCY LIGHTING UNITS

- A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
- C. Battery:
  - 1. Size battery to supply all connected lamps, including emergency remote heads where indicated.
- D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
- E. Provide low-voltage disconnect to prevent battery damage from deep discharge.

#### 2.05 WARRANTY

- A. All light fixtures shall have a 5-year manufacturer's warranty. Warranty shall begin on date of substantial completion.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. Install fixtures in accordance with manufacturer's instructions.
- B. Mount fixtures in locations as shown on drawings and as called for in schedule on electrical drawings. Determine type of ceiling to be installed in each space from drawings and schedules and furnish fixtures suitable for the exact type.
- C. Joints in fixture wiring shall be made using wire nuts, pre-insulated Scotch locks, or other approved mechanical means of connection.
- D. Adjustable type fixtures shall be adjusted by the Contractor to illuminate intended area to satisfaction of the Engineer.
- E. Surface fixtures in or on plastered or drywall ceilings shall be supported from pieces of support channel spanning across main support channels and shall not depend on ceilings for support.
- F. Coordinate fixture locations to clear diffusers, ductwork, piping, etc.
- G. Maintain integrity of enclosures on all enclosed and gasketed fixtures. Minimize number of enclosure penetrations and make such penetrations water and dust tight with appropriate gasketing and fittings.
- H. Fixtures are to fit tight against construction to eliminate light leaks.
- I. Recessed downlights are to be provided with adjustable mounting bars/frames for drywall or lay-in ceilings as required. Fixtures shall be securely fastened to the ceiling framing member by



mechanical means such as bolts, screws, rivets, or listed clips identified for use with the type of ceiling framing members and fixtures.

- J. Support recessed fixtures 2 foot x 2 foot and larger using a minimum of four independent wire hangers, one on each corner, of same gauge as ceiling suspension system supported from building structure independent of ceiling framing. Install earthquake clips to secure recessed grid-suspended luminaries in place.
- K. Wall-mounted fixtures shall be mounted plumb with building lines and installed with proper box and cover hardware.
- L. Surface-mounted fixtures are to cover mounting hardware. Use a canopy that is no longer than the length and width of the fixture and at a height that is no higher than required to mount the fixture absolutely vertical. Fixtures shall be plumb and shall align with building lines and with each other. Support surface mounted luminaries on grid ceiling directly from building structure. Secure to prevent movement.
- M. Stem-mounted fixtures are to be mounted to be absolutely vertical or horizontal. Install suspended luminaries using pendants supported from swivel hangers or in accordance with details shown in drawings. Provide pendant length required to suspend luminaire at indicated height. Support stem-mounted fixtures directly from the building structure.
- N. Install recessed luminaries using accessories and firestopping materials to meet regulatory requirements for fire rating. In fire rated ceilings, recessed luminaries must carry one-hour UL fire rating classification.
- O. Install all accessories specified with each fixture. Install recessed luminaries to permit removal from below.
- P. Bond products and metal accessories to branch circuit equipment grounding conductor.
- Q. At completion of installation and before turning over to owner, clean and remove all dirt and smudges from all lighting fixtures including lenses, louvers and reflectors.
- R. Relamp luminaries that have failed at completion of project.
- S. Battery backup unit equipment emergency lighting shall be circuitred in accordance with NEC Article 700.12. Equipment on the same branch circuit as that serving the normal lighting in the area to be connected ahead of any local switches.

**END OF SECTION**



## PART 1 -GENERAL

## 1.01 SECTION INCLUDES

- A. Visual Devices.
- B. Audio/Visuals.
- C. Addressable Smoke Detectors.
- D. Addressable Carbon Monoxide Detection and Alarm.
- E. Pull Stations.
- F. Door Hold/Release
- G. Voice Command.

## 1.02 REFERENCES

- A. NFPA 70 - National Electrical Code.
- B. NFPA 72, 72G, 72H - National Fire Alarm Code.
- C. NFPA 101 - Life safety code.

## 1.03 WORK INCLUDED

- A. Furnish and install as described in these specifications and as indicated on the drawings, fire alarm and smoke detection equipment with battery backup. New fire alarm system shall be voice command. Contractor shall provide all new devices as required for a fully functioning voice command system for the new addition and existing cafeteria.
  - 1. All equipment shall be UL listed under category UOJZ as an integrated control system; equipment listed under category UOXX as a control unit accessory shall not be acceptable. The installation shall meet the applicable requirements of NFPA 72 and New York State Code, as well as those standards set by the authorities having jurisdiction.
  - 2. All panels and peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name on each component. The catalog numbers specified under this section constitute the type, product quality, material and desired operating features.
  - 3. Provide all labor, materials and services to perform all operations required for the complete installation and related work shown on the drawings and as specified herein.
  - 4. All electrical work and equipment shall meet the requirements of NFPA 70 and 72.
  - 5. **For any facilities that utilize an existing fire alarm system, the contractor shall coordinate with the owner and fire alarm monitoring company prior to removing or disabling any devices. It shall be the contractor's responsibility to provide fire watch as per the latest addition of the Fire Code of New York State. The contractor shall provide fire watch for all areas of a facility while occupied and unoccupied when any device or part of the fire alarm system is de-activated or put into "test mode".**

## 1.04 SUBMITTALS

- A. **All submittals and as-built drawings shall be reviewed and stamped by a NY State licensed P.E. Non-stamped drawings will be automatically rejected.**



- B. Submit product data as required by Section 013300.
  - 1. Two copies of all submittals shall be submitted to the Architect/Engineer for review.
  - 2. All references to manufacturer's model numbers and other pertinent information herein is intended to establish minimum standards of performance, function and quality.
  - 3. Equivalent equipment (compatible UL-Listed) from other manufacturers may be substituted for the specified equipment as long as the minimum standards are met, and upon approval of the Architect/Engineer.
- C. Shop drawings:
  - 1. Provide a list (bill of materials) of all types of equipment and components provided.
  - 2. Provide annunciator layout and system wiring diagram showing each device and wiring connection required, including existing equipment. Provide a description of operation of the system. Provide system ampere load and time calculations to substantiate compliance with battery back up (24 hours in non-alarm condition followed by 5 minutes in alarm, after normal power loss)
  - 3. Sufficient information, clearly presented shall be included to determine compliance with drawings and specifications.
  - 4. Include manufacturer's printed product data with name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
- D. Manuals:
  - 1. Submit simultaneously with the shop drawings, complete operating and maintenance manual listing the manufacturers name(s) including technical data sheets.
  - 2. Wiring diagrams shall indicate internal wiring for each item of equipment and the interconnections between the items of equipment.
  - 3. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system.
  - 4. Indicate application conditions and limitations of use stipulated by product testing agency.
  - 5. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of products
- E. Test Reports and Certifications:
  - 1. Indicate satisfactory completion of required tests and inspections.
  - 2. Together with the shop drawing submittal, submit a certification from the major equipment manufacturer indicating that the proposed supervisor of installation and the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer. Include names and addresses in the certification.

#### 1.05 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839.
- B. On as-built installation drawings: Record actual locations of initiating devices, signaling appliances, and end-of-line devices, including those that are existing.
- C. Provide a written sequence of operation to the owner.
- D. Provide site specific software and program, including all addressable points.
- E. A completed NFPA 72 Inspection and Testing form shall be submitted to the owner, prior to system acceptance.



### 1.06 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017839.
- B. Maintenance and testing shall be on a semiannual basis or as required by the Authority Having Jurisdiction (AHJ). A preventive maintenance schedule shall be provided by the Contractor that shall describe the protocol for preventative maintenance. The schedule shall include:
  - 1. Systematic examination, adjustments and cleaning of all detectors, manual fire alarm stations, control panels, power supplies, relays and all accessories of the fire alarm system.
  - 2. Each circuit in the fire alarm system shall be tested semiannually.
  - 3. Each smoke detector shall be tested in accordance with the requirements of NFPA 72 Chapter 7.

### 1.07 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum ten (10) years documented experience, and with service facilities within fifty (50) miles of project location.
- B. Installer: Company specializing in installing the products specified in this section with minimum three (3) years documented experience, and certified by the State of New York as fire alarm installer.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Edwards System Technology

### 2.02 GENERAL

- A. All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approval agency for use as part of a protected premises protective signaling (fire alarm) system.
- B. All equipment and components shall be installed in strict compliance with manufacturers' recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning equipment installation.
- C. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

### 2.03 CONDUIT AND WIRE

- A. Conduit:
  - 1. Conduit shall be in accordance with the National Electric Code (NEC), local and state requirements.
  - 2. All wiring shall be installed using plenum rated cable.
  - 3. Cable must be separated from any open conductors, as per NEC Article 760-29.
  - 4. Wiring for 24 volt control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the



system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals

5. Conduit shall enter the Fire Alarm Control Panel, Remote Annunciator Panel and/or backboxes where conduit entry is designated and permitted by the FACP manufacturer.
6. Conduit shall be ¾ inch (19.1 mm) minimum.
7. In finished areas where conduit cannot be concealed, surface mounted raceway is to be used.

B. Wire:

1. All fire alarm system wiring shall be new.
2. Wiring shall be in accordance with local, state and national codes (e.g., NEC Article 760), and as recommended by the manufacturer of the fire alarm system. Number and size of conductors shall be as recommended by the fire alarm system manufacturer, but not less than 18 AWG (1.02 mm) for Initiating Device Circuits and Signaling Line Circuits, and not less than 14 AWG (1.63mm) for Notification Appliance Circuits. All wiring shall be of the type recommended by the manufacturer.
3. All wire and cable shall be listed and/or approved by a recognized testing agency for use with a protective signaling system.
4. All wire and cable shall have a fire resistance rating suitable for the installation as indicated in NFPA 70, and shall test free from grounds or crosses between conductors.
5. Wiring used for the multiplex communication loop shall be twisted and shielded and installed in conduit unless specifically excepted by the fire alarm equipment manufacturer. The system shall permit use of IDC and NAC wiring in the same conduit with the communication loop
6. All field wiring shall be completely supervised.

C. Terminal Boxes, Junction Boxes and Cabinets:

1. All boxes and cabinets shall be UL listed for their use and purpose.

D. Circuits shall be arranged to serve like categories (manual, smoke, horn, strobe). Mixed category circuitry shall not be permitted except on signaling line circuits connected to addressable reporting devices.

## 2.04 SEQUENCE OF OPERATIONS

A. Fire Alarm System Sequence of Operation

1. Operation of any manual fire alarm station or activation of any smoke sensor, area smoke detector, duct smoke detector, or heat detector throughout the building shall automatically:
  - a. Sound all horns throughout the building with an individual Temporal '3' Code. The alarm signals may be silenced during the alarm condition by operation of the FACP alarm silence switch. Subsequent alarm conditions shall re-sound the alarm horns/speakers.
  - b. Flash all alarm strobe lights throughout the building. The alarm strobe lights shall be turned off when the system is reset.
  - c. Display a general alarm indication and system status summary (numbers of alarm, supervisory and/or trouble conditions) on the FACP liquid crystal display (LCD). Pressing the alarm acknowledge key shall display, for thirty (30) seconds, the individual device or circuit display, to include the "alarm" status and custom label (up to forty characters and spaces) for the addressable device or circuit of alarm initiation on the liquid crystal display (LCD). At the end of the thirty (30) second period, the general alarm indication and system status summary shall again be displayed. The individual device/circuit display may be recalled at any time by repressing the alarm acknowledge key or until the alarm condition is reset to normal.
  - d. Enter the alarm condition custom label with time and date of occurrence into the FACP historical alarm log for future recall.
  - e. Shutdown all fans over 1000 CFM.



- f. Release Magnetic Door Hold Opens.
  - g. Recall elevator as per existing system programming.
  - h. Activate circuit and initiate alarm to central station. The Central station monitoring shall be furnished by owner.
- 2. Operation of any carbon monoxide detector the building shall automatically:
  - a. Sound the integral sounder base on the carbon monoxide detector in alarm only, with an individual Temporal '4' Code. The alarm signals shall only be silenced when carbon monoxide detector is no longer in alarm.
  - b. Display/sound an alarm indication and system status summary (numbers of alarm, supervisory and/or trouble conditions) on the FACP liquid crystal display (LCD) stating "Carbon Monoxide Alarm". Pressing the alarm acknowledge key shall display, for thirty (30) seconds, the individual device or circuit display, to include the "alarm" status and custom label (up to forty characters and spaces) for the addressable device or circuit of alarm initiation on the liquid crystal display (LCD). At the end of the thirty (30) second period, the general alarm indication and system status summary shall again be displayed. The individual device/circuit display may be recalled at any time by repressing the alarm acknowledge key or until the alarm condition is reset to normal.
  - c. Enter the alarm condition custom label with time and date of occurrence into the FACP historical alarm log for future recall.
  - d. Shutdown all fans over 1000 CFM.
  - e. Release Magnetic Door Hold Opens.
  - f. Recall elevator as per existing system programming.
  - g. Activate circuit and initiate alarm to central station stating "Carbon Monoxide Alarm". The Central station monitoring shall be furnished by owner.

## 2.05 MAIN FIRE ALARM CONTROL PANEL

- A. The fire alarm system control panel shall be Edwards System Technology EST-3

## 2.06 PERIPHERAL DEVICES

- A. The pull station shall be compatible with existing fire alarm control panel. Red LEXAN or metal, and finished in red with molded raised letter operating instruction of contrasting color. Station will mechanically latch upon operation and remain so until manually reset by opening with a key common with control units.
- B. Lexan Protective Shield shall be STI Stopper II with tamperproof, clear LEXAN shield and red frame that easily fits over manual pull stations. When shield is lifted to gain access to the station. A battery powered piercing warning horn shall be activated. The horn shall be silenced by lowering and realigning the shield. The horn shall provide 85dB at 10 feet and shall be powered by a 9 VDC battery. All manual pull stations in public areas shall be provided with protective shield.

## 2.07 ANNUNCIATION (NOTIFICATION) DEVICES

- A. The visual and audio/visual signaling devices shall be compatible with the existing fire alarm control panel as stated in the installation manuals and be Listed with Underwriters Laboratories Inc. per UL 1971 and/or 1638.
- B. The visual and audio/visual signaling devices shall be wall mounted to meet ADA requirements.
- C. Each indicating appliance circuit shall be electrically supervised for opens, grounds and short circuit faults, on the circuit wiring, and shall be so arranged that a fault condition on any indicating appliance circuit or group of circuits will not cause an alarm to sound. The occurrence

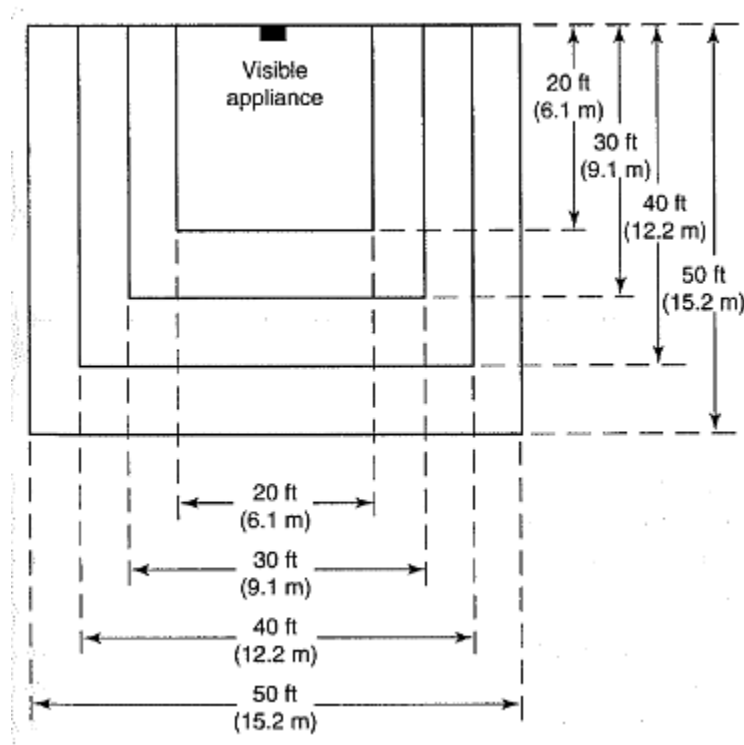


of any fault will light the trouble LED and sound the system trouble sounder, but will not interfere with the proper operation of any circuit which does not have a fault condition.

- D. The notification appliance (combination audio/visual units only) shall produce a peak sound output of 90dba or greater as measured in an anechoic chamber. The contractor shall measure sound levels throughout school and adjust speakers so sound levels are 20dBA above average ambient (during school hours) and less than 110dBA. Contractor shall provide measuring report stating locations, ambient sound levels, and speaker temporal sound levels. Measurements shall be take 5'-0" in front of each audible device and 25'-0" in front of each audible device.
- E. The notification appliance (combination audio/visual units and visual only units) shall provide field selectable flash intensities of 15cd, 30cd, 75cd, 110cd. The appliance shall be capable of meeting the candela requirements of ADA. Provide, adjust and install audio/visual units and visual units to meet the requirements defined in Room Spacing for Wall-Mounted Visible Appliances Table and Figure below:

<i>Maximum Room Size</i>		<i>Minimum Required Light Output [Effective Intensity (cd)]</i>		
		<i>One Light per Room</i>	<i>Two Lights per Room (Located on Opposite Walls)</i>	<i>Four Lights per Room (One Light per Wall)</i>
<i>ft</i>	<i>m</i>			
20 × 20	6.10 × 6.10	15	NA	NA
28 × 28	8.53 × 8.53	30	Unknown	NA
30 × 30	9.14 × 9.14	34	15	NA
40 × 40	12.2 × 12.2	60	30	15
45 × 45	13.7 × 13.7	75	Unknown	19
50 × 50	15.2 × 15.2	94	60	30
54 × 54	16.5 × 16.5	110	Unknown	30
55 × 55	16.8 × 16.8	115	Unknown	28
60 × 60	18.3 × 18.3	135	95	30
63 × 63	19.2 × 19.2	150	Unknown	37
68 × 68	20.7 × 20.7	177	Unknown	43
70 × 70	21.3 × 21.3	184	95	60
80 × 80	24.4 × 24.4	240	135	60
90 × 90	27.4 × 27.4	304	185	95
100 × 100	30.5 × 30.5	375	240	95
110 × 110	33.5 × 33.5	455	240	135
120 × 120	36.6 × 36.6	540	305	135
130 × 130	39.6 × 39.6	635	375	185





- F. The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with terminals with barriers for input/output wiring and be able to mount a single gang or double gang box or double workbox with the use of an adapter plate.
- G. Power supplies and batteries shall be sized to accommodate 110cd at all strobes.

## 2.08 SMOKE SENSORS

- A. Shall be compatible with existing fire alarm control panel as stated in the installation manual and comply with UL 268, "Smoke Detectors for Fire Protective Signaling Systems," Include the following features:
  1. Operating Voltage: 24 VDC, nominal,
  2. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore normal operation,
  3. Plug-In Arrangement: Sensor and associated electronic components are mounted in a module that connects to a fixed base with a twist-Locking plug connection. Base shall provide break-off plastic tab that can be removed to engage the head/base locking mechanism. No special tools shall be required to remove head once it has been locked. Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the control unit,
  4. Each sensor base shall contain) LED that will flash each time it is scanned by the Control Unit (once every 4 seconds). In alarm condition, the [detector head][sensor base] LED shall be on steady.
  5. Each sensor base shall contain a magnetically actuated test switch to provide for easy alarm testing at the sensor location,
  6. Each sensor shall be scanned by the Control Unit for its type identification to prevent inadvertent substitution of another sensor type, Upon detection of a "wrong device", the control unit shall operate with the installed device at the default alarm settings for that



sensor; 2.5% obscuration for photoelectric sensor, 135-deg F and 15-deg F rate-of-rise for the heat sensor, but shall indicate a "Wrong Device" trouble condition.

7. The sensor's electronics shall be immune from false alarms caused by EMI and RFI.
  8. Addressability. Sensors include a communication transmitter and receiver in the mounting base having a unique identification and capability for status reporting to the FACP. Sensor address shall be located in base to eliminate false addressing when replacing sensors.
  9. Removal of the sensor head for cleaning shall not require the setting of addresses.
- B. Type: Smoke sensors shall be of the photoelectric type where acceptable per manufacturer specifications ionization type sensors may be used.

## 2.09 CARBON MONOXIDE DETECTOR WITH SOUNDER BASE

- A. Combination Smoke and Carbon Monoxide Detector with sounder base shall be compatible with the existing fire alarm control panel as stated in the installation manuals and shall be addressable with integral sounder base.
- B. New devices shall be provided with a sounder base.
- C. Carbon monoxide detector shall be provided an individual addressable module as required to interface with the FACP.
- D. Manufacturer: Edwards
  1. Model: SIGA2-COS
  2. Accessories: SIGA-AB4GT with SIGA-TCOR (Temporal '4' Pattern Generator)
- E. When carbon monoxide detector has reached the end of its usable life a trouble condition shall be signaled at the FACP / remote annunciators.
- F. When a carbon monoxide sensor is in alarm, that carbon monoxide sounder base only shall sound a 'Temporal 4' code pattern, an alarm shall sound at the panel, and central station shall be notified.

## 2.10 MAGNETIC DOOR HOLDERS

- A. Units shall be EST Model IJOi-AQN5 and listed to UL 228 Units are equipped for surface mounting as indicated and are complete with matching doorplate. Unit shall operate from a 120VAC, 24VAC. 24VDC source and develops a minimum of 25 lbs. holding force.

## 2.11 VOICE COMMAND

- A. Shall comply with UL 2572, "Mass Notification Systems".
- B. New FACP shall include all accessories required for a fully functioning voice command system, including but not limited to:
  1. Amplifiers
  2. Paging Microphone with selective paging
  3. Firefighter's Telephone
  4. LCD Display

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. No installation shall begin without approved plans from the fire marshal or AHJ.



- B. The entire system shall be installed in a workmanlike manner, in accordance with approved manufacturer's wiring diagrams. The Contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation.
- C. All penetrations of floor slabs and fire walls shall be fire stopped in accordance with all local fire codes.
- D. End of Line Devices (Resistors/Diodes/Capacitors): Shall be furnished as required for mounting as directed by the manufacturer.
- E. All wiring shall be color coded throughout, to National Electrical Code standards and a minimum of No. 18 AWG., unless otherwise noted. All wiring shall be of the type recommended by the manufacturer.
- F. All wires shall test free from grounds or crosses between conductors.
- G. Fire alarm system terminal and junction locations shall be identified in accordance with NFPA Standard 70, Section 760-3. Terminal and junction boxes shall be painted red and stenciled in white letters "FIRE ALARM", preventing unintentional interference with the fire alarm system wiring during testing, servicing and additional modifications to the system.
- H. All final connections between system equipment and the wiring shall be made under the supervision of a trained manufacturer's technical representative.
- I. The contractor shall submit to the Authority Having Jurisdiction (AHJ), all necessary drawings and equipment specifications required for a complete AHJ approved system. Drawings shall be prepared by the Contractor.
- J. The Contractor shall have a licensed New York State Professional Engineer Stamp all drawings and applications. Pay for all fees to obtain all necessary permits.
- K. All junction boxes housing relays must be labeled with P-Touch type labeler with relay point number and device it serves, i.e. (0001-Flow Switch 1).
- L. Contractor to review points list prior to programming with Owner. Contractor only to program approved points list. Any changes to program not previously approved by Owner will be done at Contractor's expense.

### 3.02 CLEAN UP

- A. Upon completion of the installation, all debris created by the installation shall be removed from the premises or disposed of as directed by the Owner.
- B. It shall be the responsibility of the installing contractor to assure that construction debris does not adversely affect any sensing devices installed as part of this project. Should it be deemed necessary by the engineer, owner or AHJ, the installing contractor shall be responsible for the clearing of all devices prior to final acceptance.

### 3.03 TESTS

- A. Prior to the final acceptance test, the Contractor and a trained manufacturer's technical representative shall test the completed system for proper operation. The system shall be demonstrated to perform all of the functions as below listed in 3.04 C. Any system, equipment or wiring failures discovered during said test shall be repaired or replaced before requesting scheduling of the final acceptance test.



- B. The system shall be tested for final acceptance in the presence of the Owner's representative, Architect's representative, Engineer's representative, the local Code enforcement official, Contractor's representative and the Manufacturer's representative.
- C. During the final acceptance test:
  - 1. Every smoke detector, heat detector and carbon monoxide detector shall be tested.
  - 2. Every audible alarm signaling device shall be sounded.
  - 3. Every visual alarm signaling device shall be lit or flashed.
  - 4. Confirm central station alarm monitoring receives signal.
- D. Upon successful completion of all final acceptance tests, the Contractor's and Manufacturer's representatives shall each author and sign a letter confirming the successful completion of testing. Two (2) copies of each letter shall be forwarded to the Owner's representative, the Architect's representative, the Engineer's representative and the local Code enforcement official.
- E. All final acceptance testing shall be done at a time convenient to the local Code enforcement official and the Owner's representatives and all testing costs shall be born by the Contractor as part of this Contract.

#### 3.04 DOCUMENTATION AND TRAINING

- A. The Contractor shall provide the services of a trained manufacturer's employee for a period of two (2) hours, during normal business hours, to instruct the Owner's designated personnel on the operation and maintenance of the entire system.

#### 3.05 MAINTENANCE AND TESTING AGREEMENT

- A. The equipment manufacturer shall provide to the Owner a price quotation for a one (1) year fire alarm system maintenance and testing agreement to begin upon final acceptance of the system. System Supplier shall have a local service organization with a minimum of 20 factory trained technicians. Technicians shall be NICET Level 2 certified.

#### 3.06 SERVICE AND MAINTENANCE

- A. The equipment manufacturer shall make available a fully equipped service organization, capable of guaranteeing an on-site service response time within eight (8) hours to a service request call. Said service shall be available twenty-four (24) hours per day and seven (7) days per week.
- B. The equipment manufacturer shall make available, to the Owner, a price quotation for a one (1) year maintenance and testing agreement, to take effect on the date of final acceptance

#### 3.07 GUARANTEE

- A. The Contractor shall guarantee all wiring and equipment to be free from inherent mechanical and electrical defects for one (1) year. Manufacturer shall make available to the Owner a local service department, which shall stock standard parts on the premises. Maintenance is to be provided during normal working hours, at no cost to the owner, for a period of twelve (12) months from the date of acceptance of the installation, unless damage is caused by misuse, abuse or accident.

#### END OF SECTION



## **APPENDIX**

### **FINAL REPORT OF ENVIRONMENTAL SERVICES AT DOWS LANE ELEMENTARY SCHOOL**



# **FINAL REPORT OF ENVIRONMENTAL SERVICES**

*Performed at:*

**DOWS LANE ELEMENTARY SCHOOL  
INNOVATION SUITE  
6 DOWS LANE  
IRVINGTON, NY 10533**

*Prepared for:*



**IRVINGTON**  
UNION FREE SCHOOL DISTRICT

**Irvington Union Free School District  
6 Dows Lane  
Irvington, NY 10533**

*Prepared by:*



**WSP USA Solutions, Inc.  
500 Summit Lake Drive, Suite 450  
Valhalla, NY 10595  
Tel. (914) 747-1120**

**Project No. 31402880.008  
Final Submission Date: March 02, 2021**





March 02, 2021

Mr. Gary Knowles  
Director of Facilities  
Irvington Union Free School District  
6 Dows Lane  
Irvington, NY 10533

**Subject: Final Report of Environmental Services  
Dows Lane Elementary School  
Innovation Suite  
6 Dows Lane  
Irvington, NY 10533**

Dear Mr. Knowles:

WSP USA Solutions, Inc. has completed a material inspection at the Dows Lane Elementary School located at 6 Down Lane, Irvington, NY 10533. The inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM), Lead Based Paints (LBP) and Polychlorinated Biphenyls (PCBs) as part of the Innovation Suite project at the Dows Lane Elementary School.

The attached report presents descriptions and results of the material sampling procedures and visual analysis. Relevant general project information is provided, followed by our findings, assessments and recommendations. Laboratory analysis data and certifications are provided in the Appendices.

If you have any questions concerning this report or if we may be of further assistance to you, please contact us.

Sincerely,

**WSP USA SOLUTIONS, INC.**

A handwritten signature in blue ink, appearing to read 'CN', is placed above the name of the signatory.

Craig Napolitano, CHMM  
Vice President, Hazmat & IH Services





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### **Appendices**

Appendix A: Asbestos Sample Analysis Results in Tabular Form

Appendix B: Asbestos Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results

Appendix C: Asbestos Bulk Sample Location Drawings

Appendix D: Asbestos Containing Materials Location Drawings

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Appendix F: PCB Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results

Appendix G: Company License, Personnel Certifications and Laboratory Accreditations

Appendix H: Scope of Work Drawings

Appendix I: Photographic Documentation

Appendix J: File Search





## **1.0 EXECUTIVE SUMMARY**

WSP USA Solutions, Inc. has performed a material inspection for the presence or absence of Asbestos-Containing Materials (ACM), Lead Based Paints (LBP) and Polychlorinated Biphenyls (PCBs) at the Dows Lane Elementary School located at 6 Down Lane, Irvington, NY 10533. The intent of this inspection was to screen for ACM, LBP and PCBs that may be impacted during the Innovation Suite project at the Dows Lane Elementary School.

Josue Garcia, Dmitri Kirnossenko and Stephen Gruber of WSP performed this inspection on February 17, 2021. Mr. Garcia is licensed as a New York State Department of Labor (NYSDOL) Asbestos Inspector (Cert# 01-04292). Mr. Kirnossenko is a licensed New York State EPA as a Lead Risk Assessor (Cert# LBP-R-16279-1). Mr. Gruber is licensed as a New York State Department of Labor (NYSDOL) Asbestos Inspector (Cert# 17-42557).

The results of the visual inspection and bulk sample analysis determined that the following suspect ACM, LBP and PCB materials may be impacted by the Innovation Suite project at the Dows Lane Elementary School:

### **A. ASBESTOS-CONTAINING MATERIAL**

Analytical results of the bulk samples collected on 02/17/2021 by WSP indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Sink Undercoating (Black)**
- **Mastic Associated with 12"x12" Tan & Brown Floor Tiles (Brown/Black)**
- **12"x12" Floor Tile (Tan)-Contaminated ACM**
- **12"x12" Floor Tile (Brown)-Contaminated ACM**
- **Ceramic Wall Tile Backing (Beige)-Not affected by current scope of work**

Analytical results of the bulk samples collected on 02/17/2021 by WSP indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Gypsum Board (Gray)
- Joint Compound (White)
- Mastic Associated with 12"x12" Beige Floor Tile (Black)
- 12"x12" Floor Tile (Beige)
- 2'x4' Square Design Ceiling Tile (White)
- 1'x1' Spline Ceiling Tile White)
- Spray-on Fireproofing (Gray)
- Ceiling Plaster (White Coat)
- Ceiling Plaster (Brown Coat)
- Soffit Plaster (White Coat)
- Soffit Plaster (Brown Coat)
- Tectum Ceiling Deck (Tan/Gray)
- Ceramic Wall Tile Grout (White)





## ***Final Report for Environmental Inspection Services***

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- Ceramic Floor Tile Mortar (Gray)
- Mastic Associated with Carpet (Black)
- Leveling Compound (Gray)
- Mastic Associated with 4" Light Brown Cove Base Molding (Brown)
- 4" Cove Base Molding (Light Brown)

Analytical results of the bulk samples reported in report dated 01/24/2020 indicate that the following materials did not contain asbestos (less than 1-percent),

- 12"x12" Red Marble Floor Tile
- 12"x12" Beige Marble Floor Tile
- Ceramic Wall Tile Backing
- Terrazzo Flooring
- 2'x4' Ceiling Tile
- Brick Mortar
- CMU Mortar
- Mastic to 4" Black Cove Base (Brown)
- 4" Black Cove Base

### ***B. LEAD-BASED PAINT***

**Based upon XRF readings, lead has been confirmed to exist in the following tested combinations:**

- **None**

Lead was **not detected** in the following tested combinations via XRF readings:

- Varnish Paint on Wood Door (Library)
- Green Paint on Metal Door frame (Library)
- Beige Paint on Cinder Block Wall (Library)
- Beige Paint on Metal Electrical conduit (Library)
- Beige Paint on Gypsum Wall (Library)
- Varnish Paint on Wood Cabinet (Library)
- Green Paint on Metal Window frame (Library)
- White Paint on Plaster Soffit (Library)
- White Paint on Metal Pipe (Library)
- White Paint on Plaster Soffit (Library)
- Black Paint on Metal Unit ventilator (Library)
- Gray Paint on Metal Unit ventilator (Library)
- Varnish Paint on Wood Door (Computer Lab)
- Green Paint on Metal Door frame (Computer Lab)
- Beige Paint on Cinder Block Wall (Computer Lab)
- Varnish Paint on Wood Cabinet (Computer Lab)





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- Black Paint on Metal Unit ventilator (Computer Lab)
- Gray Paint on Metal Unit ventilator (Computer Lab)
- Green Paint on Metal Window frame (Computer Lab)
- Beige Paint on Gypsum Wall (Computer Lab)
- Varnish Paint on Wood Door (Computer Lab Bathroom)
- Green Paint on Metal Door frame (Computer Lab Bathroom)
- Beige Paint on Cinder Block Wall (Computer Lab Bathroom)
- Beige Paint on Plaster Ceiling (Computer Lab Bathroom)
- Varnish Paint on Wood Door (Library Adults Bathroom)
- Green Paint on Metal Door frame (Library Adults Bathroom)
- Beige Paint on Cinder Block Wall (Library Adults Bathroom)
- Green Paint on Metal Radiator cover (Library Adults Bathroom)
- Beige Paint on Plaster Ceiling (Library Adults Bathroom)
- Varnish Paint on Wood Door (Library Storage)
- Green Paint on Metal Door frame (Library Storage)
- White Paint on Cinder Block Wall (Library Storage)
- White Paint on Metal Radiator cover (Library Storage)
- White Paint on Wood Cabinet (Library Storage)
- White Paint on Metal Pipe (Library Storage)
- Green Paint on Metal Window frame (Library Storage)
- White Paint on Plaster Ceiling (Library Storage)
- White Paint on Metal Access panel (Library Storage)
- Varnish Paint on Wood Door (School Monitors Office)
- Pink Paint on Metal Door frame (School Monitors Office)
- Beige Paint on Cinder Block Wall (School Monitors Office)
- Beige Paint on Wood Cabinet (School Monitors Office)
- Beige Paint on Metal Radiator cover (School Monitors Office)
- Beige Paint on Fiberglass Pipe Insulation (School Monitors Office)
- Beige Paint on Metal Beam (School Monitors Office)
- Beige Paint on Plaster Ceiling (School Monitors Office)
- Beige Paint on Metal Access panel (School Monitors Office)
- Varnish Paint on Wood Door (Library Students Bathroom)
- Green Paint on Metal Door frame (Library Students Bathroom)
- Beige Paint on Cinder Block Wall (Library Students Bathroom)
- Beige Paint on Plaster Ceiling (Library Students Bathroom)
- Green Paint on Metal Radiator cover (Library Students Bathroom)
- Beige Paint on Cinder Block Wall (Library Foyer)
- Varnish Paint on Wood Door (Room G2)
- Green Paint on Metal Door frame (Room G2)
- Beige Paint on Gypsum Soffit (Room G2)
- Beige Paint on Gypsum Wall (Room G2)
- Varnish Paint on Wood Baseboard (Room G2)
- Green Paint on Metal Window frame (Room G2)
- Varnish Paint on Wood Cabinet (Room G2)





- Varnish Paint on Wood Board frame (Room G2)
- Beige Paint on Gypsum Wall (Hallway by Room G2)

### ***C. PCB-CONTAINING MATERIAL***

Analytical results of the bulk samples collected indicate that the following materials **contain PCB** (greater than 50 PPM):

- **None**

Analytical results of the bulk samples collected indicate that the following materials **did not contain PCB** (less than 50 PPM):

- **None**

## **2.0 FIELD INSPECTION PROCEDURES AND SAMPLE ANALYSIS METHODS**

### ***A. ASBESTOS-CONTAINING MATERIAL***

Guidelines used for the inspection were established by the Environmental Protection Agency (EPA) in the Guidance for Controlling Asbestos Containing Materials in Buildings, Office of Pesticides and Toxic Substances, Doc 560/5-85-024, and 40 CFR Part 763, Asbestos Hazard Emergency Response Act (AHERA).

Field information was organized in accordance with the AHERA methodology of homogenous area (HA). During the Inspection, reasonable effort was made to identify all locations and types of ACM materials associated with the scope of work. Sampling has included multiple samples of the same materials chosen at random. However, due to inconsistencies of a manufacturer's processes and the contractor's installation methods, materials of similar construction may contain various amounts of asbestos. Furthermore, some materials that were not originally specified to contain asbestos may in fact contain this mineral. For example, cementitious pipe insulation and plaster were frequently mixed with asbestos at the construction site for ease of application. Locating all asbestos materials can only be definitively achieved by conducting exploratory demolition and sampling every section of pipe insulation, fitting or valve covering, fireproofing, and other suspect ACM.

Bulk samples of suspect ACM are analyzed using polarized light microscopy (PLM) coupled with dispersion staining, as described in 40 CFR Part 763 and the National Emissions Standard for Hazardous Air Pollutants (NESHAPS). NESHAPS is the standard industry protocol for the determination of asbestos in building materials. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The color displays that result are compared to a standardized atlas whereby the specific variety of asbestos is determined. It should also be recognized that PLM is primarily a qualitative identification method whereby asbestos percentage, if any, is estimated. While EPA, New York State, and New York City regulations governing ACM consider materials containing greater than 1-percent as asbestos, accurately quantifying asbestos content below 5-percent has been shown to be unreliable.





The New York State Department of Health has recently revised the PLM Stratified Point Counting Method. The March 25<sup>th</sup>, 2011 method, "Polarized Light Microscopy Methods for Identifying and Quantifying Asbestos in Bulk Samples" can be found as Item 198.1 in the Environmental Laboratory Approval program (ELAP) Certification manual. Whereas the procedure of analysis for bulk samples that fall into the category of "Non-friable Organically Bound" (NOB) can be found in the March 25<sup>th</sup> 2011 method "Polarized-Light Microscope Method for Identifying and Quantifying Asbestos in Non-Friable Organically Bound Bulk Samples", Item 198.6 in the ELAP Certification Manual. This category includes any sample in a flexible to rigid asphalt or vinyl matrix (floor tiles, mastic, roofing shingles, roofing felt, etc.). These samples must be "ashed" in a muffle furnace at 480-degrees Celsius (to remove organic matrix), treated with acid (to remove any mineral carbonate), and filtered through a 0.4-micron polycarbonate filter before being analyzed by PLM. The sample must be weighted between each of these steps to track the percent loss of organic matrix.

ELAP has determined that analysis of NOB materials is not reliably performed by PLM. Therefore, if PLM analysis yields results of 1-percent asbestos or less, the result must be confirmed by TEM. For bulk samples that undergo TEM analysis, the March 25<sup>th</sup>, 2011 method "Transmission Electron Microscope Method for Identifying and Quantitating Asbestos in Non-Friable organically Bound Bulk Samples" must be used and can be found as Item 198.4 in the ELAP Certification Manual. ELAP certified laboratories must include the following statement with their PLM analysis results for each "negative" (1-percent or less asbestos) NOB sample: "Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-ACM, confirmation must be made by quantitative transmission electron microscopy".

All samples are initially analyzed by Polarized Light Microscopy in accordance with Item 198.1 and 198.6 of the ELAP Certification Manual. Samples which yield a negative PLM result and which are classified as a "non-friable" material, are then re-analyzed utilizing TEM methodology in accordance with Item 198.4 of the ELAP Certification Manual. The laboratory performing both these analysis procedures is EMSL located at 307 West 38th Street | New York, NY 10018. The laboratory has received accreditation from the following agencies:

- National Voluntary Laboratory Accreditation Program (Lab Code 101048-10)
- New York State Environmental Laboratory Approval Program (Lab No. 11469)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102344)

### ***B. LEAD-BASED PAINT***

Painted surfaces within the space equivalents in the scope of work were identified and grouped together by component type, substrate and visible color. In similar fashion, the inspection continued in each space equivalent with the identification of unique combinations of component, substrate and visible color. A random representative area of each unique combination was sampled and tested. For each of these designated components, an area on the component was chosen which represents the paint on that building component. During the inspection,





components that are accessible surfaces, friction surfaces, impact surfaces, or have deteriorated paint was identified.

The readings of paint surfaces were taken using an RMD LPA-1 XRF Lead Paint Spectrum Analyzer. The LPA-1 method of measurement is based on the spectrometric analysis of lead K-shell X-ray fluorescence within a controlled depth of interrogation. The LPA-1 Analyzer uses a Co-57 radioactive source and an advanced, solid-state, room temperature, radiation detector to generate and detect the x-ray fluorescence spectrum of a painted surface. The spectrum is then analyzed by a microprocessor to eliminate the effects of substrate and other factors such as scattering to allow an accurate determination of the amount of lead on a surface. The LPA-1 automatically analyzes spectrometric data in real time and differentiates the lead signal from the spectrum. The x-ray fluorescence properties are determined through calibration process and are used for automatic substrate correction and calculation of the lead content of a painted surface.

For quality control, the XRF instrument was calibrated using a U.S. Department of Commerce National Institute of Standards and Technology (NIST) Level III 1.0 mg/cm<sup>2</sup> lead based paint film. For each calibration, three (3) XRF readings were taken on the paint film. The average of these three (3) readings was then subtracted from the known lead content in the paint film. The difference was compared with an Environmental Protection Agency (EPA)-approved tolerance range. Such calibration procedures were conducted at the start and at the end of the workday.

### ***C. POLYCHLORINATED BIPHENYLS (PCBs)***

PCBs belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other industrial applications.

Although no longer commercially produced in the United States, PCBs may be present in products and materials produced before the 1979 PCB ban. Products that may contain PCBs include: Transformers and capacitors, Oil used in motors and hydraulic systems, Fluorescent light ballasts, Adhesives and tapes, Caulking, Plastics, etc.

The PCBs used in these products were chemical mixtures made up of a variety of individual chlorinated biphenyl components, known as congeners. Most commercial PCB mixtures are known in the United States by their industrial trade names. The most common trade name is aroclor.

Polychlorinated biphenyls (PCBs) are regulated pursuant to the United States Environmental Protection Agency Code of Federal Regulations (40 CFR Part 761) and the Toxic Substances Control Act (TSCA – 15 U.S.C. 2605). These regulations require certain testing and reporting requirements to determine management, recycling and disposal options for PCBs.





### **3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT**

The areas inspected for ACM materials that may be impacted by the proposed Innovation Suite project at the Dows Lane Elementary School. Locations surveyed include:

- Basement Classroom G2
- First Floor Library Classroom 115, Computer Room 113, Toilets and Storages

#### **A. *ASBESTOS-CONTAINING MATERIAL***

Analytical results of the bulk samples collected on 02/17/2021 by WSP indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Sink Undercoating (Black)**
- **Mastic Associated with 12"x12" Tan & Brown Floor Tiles (Brown/Black)**
- **12"x12" Floor Tile (Tan)-Contaminated ACM**
- **12"x12" Floor Tile (Brown)-Contaminated ACM**
- **Ceramic Wall Tile Backing (Beige)-Not affected by current scope of work**

Analytical results of the bulk samples collected on 02/17/2021 by WSP indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Gypsum Board (Gray)
- Joint Compound (White)
- Mastic Associated with 12"x12" Beige Floor Tile (Black)
- 12"x12" Floor Tile (Beige)
- 2'x4' Square Design Ceiling Tile (White)
- 1'x1' Spline Ceiling Tile White)
- Spray-on Fireproofing (Gray)
- Ceiling Plaster (White Coat)
- Ceiling Plaster (Brown Coat)
- Soffit Plaster (White Coat)
- Soffit Plaster (Brown Coat)
- Tectum Ceiling Deck (Tan/Gray)
- Ceramic Wall Tile Grout (White)
- Ceramic Floor Tile Mortar (Gray)
- Mastic Associated with Carpet (Black)
- Leveling Compound (Gray)
- Mastic Associated with 4" Light Brown Cove Base Molding (Brown)
- 4" Cove Base Molding (Light Brown)

Analytical results of the bulk samples reported in report dated 01/24/2020 indicate that the following materials did not contain asbestos (less than 1-percent),

- 12"x12" Red Marble Floor Tile
- 12"x12" Beige Marble Floor Tile





- Ceramic Wall Tile Backing
- Terrazzo Flooring
- 2'x4' Ceiling Tile
- Brick Mortar
- CMU Mortar
- Mastic to 4" Black Cove Base (Brown)
- 4" Black Cove Base

### ***B. LEAD-BASED PAINT***

**Based upon XRF readings, lead has been confirmed to exist in the following tested combinations:**

- **None**

Lead was **not detected** in the following tested combinations via XRF readings:

- Varnish Paint on Wood Door (Library)
- Green Paint on Metal Door frame (Library)
- Beige Paint on Cinder Block Wall (Library)
- Beige Paint on Metal Electrical conduit (Library)
- Beige Paint on Gypsum Wall (Library)
- Varnish Paint on Wood Cabinet (Library)
- Green Paint on Metal Window frame (Library)
- White Paint on Plaster Soffit (Library)
- White Paint on Metal Pipe (Library)
- White Paint on Plaster Soffit (Library)
- Black Paint on Metal Unit ventilator (Library)
- Gray Paint on Metal Unit ventilator (Library)
- Varnish Paint on Wood Door (Computer Lab)
- Green Paint on Metal Door frame (Computer Lab)
- Beige Paint on Cinder Block Wall (Computer Lab)
- Varnish Paint on Wood Cabinet (Computer Lab)
- Black Paint on Metal Unit ventilator (Computer Lab)
- Gray Paint on Metal Unit ventilator (Computer Lab)
- Green Paint on Metal Window frame (Computer Lab)
- Beige Paint on Gypsum Wall (Computer Lab)
- Varnish Paint on Wood Door (Computer Lab Bathroom)
- Green Paint on Metal Door frame (Computer Lab Bathroom)
- Beige Paint on Cinder Block Wall (Computer Lab Bathroom)
- Beige Paint on Plaster Ceiling (Computer Lab Bathroom)
- Varnish Paint on Wood Door (Library Adults Bathroom)
- Green Paint on Metal Door frame (Library Adults Bathroom)
- Beige Paint on Cinder Block Wall (Library Adults Bathroom)





- Green Paint on Metal Radiator cover (Library Adults Bathroom)
- Beige Paint on Plaster Ceiling (Library Adults Bathroom)
- Varnish Paint on Wood Door (Library Storage)
- Green Paint on Metal Door frame (Library Storage)
- White Paint on Cinder Block Wall (Library Storage)
- White Paint on Metal Radiator cover (Library Storage)
- White Paint on Wood Cabinet (Library Storage)
- White Paint on Metal Pipe (Library Storage)
- Green Paint on Metal Window frame (Library Storage)
- White Paint on Plaster Ceiling (Library Storage)
- White Paint on Metal Access panel (Library Storage)
- Varnish Paint on Wood Door (School Monitors Office)
- Pink Paint on Metal Door frame (School Monitors Office)
- Beige Paint on Cinder Block Wall (School Monitors Office)
- Beige Paint on Wood Cabinet (School Monitors Office)
- Beige Paint on Metal Radiator cover (School Monitors Office)
- Beige Paint on Fiberglass Pipe Insulation (School Monitors Office)
- Beige Paint on Metal Beam (School Monitors Office)
- Beige Paint on Plaster Ceiling (School Monitors Office)
- Beige Paint on Metal Access panel (School Monitors Office)
- Varnish Paint on Wood Door (Library Students Bathroom)
- Green Paint on Metal Door frame (Library Students Bathroom)
- Beige Paint on Cinder Block Wall (Library Students Bathroom)
- Beige Paint on Plaster Ceiling (Library Students Bathroom)
- Green Paint on Metal Radiator cover (Library Students Bathroom)
- Beige Paint on Cinder Block Wall (Library Foyer)
- Varnish Paint on Wood Door (Room G2)
- Green Paint on Metal Door frame (Room G2)
- Beige Paint on Gypsum Soffit (Room G2)
- Beige Paint on Gypsum Wall (Room G2)
- Varnish Paint on Wood Baseboard (Room G2)
- Green Paint on Metal Window frame (Room G2)
- Varnish Paint on Wood Cabinet (Room G2)
- Varnish Paint on Wood Board frame (Room G2)
- Beige Paint on Gypsum Wall (Hallway by Room G2)

#### **D. PCB-CONTAINING MATERIAL**

Analytical results of the bulk samples collected indicate that the following materials **contain PCB** (greater than 50 PPM):

- **None**





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Analytical results of the bulk samples collected indicate that the following materials **did not contain PCB** (less than 50 PPM):

- None

### 4.0 INSPECTION RESULTS

#### A. ASBESTOS-CONTAINING MATERIAL

The asbestos inspection involved a thorough visual examination of all areas that may be impacted by the proposed Innovation Suite project at the Dows Lane Elementary School. The following suspect materials were sampled and analyzed for asbestos content by WSP:

**4.1 Table 4.1 – Suspect Materials Inspected**

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
<b>WSP Sampled on 02/17/2021</b>			
01	Basement	Gypsum Board (Gray)	NAD
02	Basement	Joint Compound (White)	NAD
03	Basement	Mastic Associated with 12"x12" Beige Floor Tile (Black)	NAD
04	Basement	12"x12" Floor Tile (Beige)	NAD
05	Basement	2'x4' Square Design Ceiling Tile (White)	NAD
06	Basement	1'x1' Spline Ceiling Tile (White)	NAD
07	Basement	Spray-on Fireproofing (Gray)	NAD
08	First Floor	Ceiling Plaster (White Coat)	NAD
09	First Floor	Ceiling Plaster (Brown Coat)	NAD
10	First Floor	Soffit Plaster (White Coat)	NAD
11	First Floor	Soffit Plaster (Brown Coat)	NAD
12	First Floor	Tectum Ceiling Deck (Tan/Gray)	NAD
13	First Floor	Ceramic Wall Tile Grout (White)	NAD
14	First Floor	<b>Ceramic Wall Tile Backing (Beige) <sup>1</sup></b>	<b>5.60% Chrysotile</b>
15	First Floor	Ceramic Floor Tile Mortar (Gray)	NAD
16	First Floor	<b>Sink Undercoating (Black)</b>	<b>1.60% Chrysotile</b>
17	First Floor	<b>Mastic Associated with 12"x12" Tan &amp; Brown Floor Tiles (Brown/Black)</b>	<b>1.20% Chrysotile</b>
18	First Floor	<b>12"x12" Floor Tile (Tan)</b>	<b>NAD-Contaminated ACM</b>
19	First Floor	<b>12"x12" Floor Tile (Brown)</b>	<b>NAD-Contaminated ACM</b>
20	First Floor	Mastic Associated with Carpet (Black)	<1% Chrysotile





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HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
21	First Floor	Leveling Compound (Gray)	NAD
22	First Floor	Mastic Associated with 4" Light Brown Cove Base Molding (Brown)	NAD
23	First Floor	4" Cove Base Molding (Light Brown)	NAD
<b>Reported in Report dated 01/24/2020</b>			
04	Throughout	12"x12" Red Marble Floor Tile	
05	Throughout	12"x12" Beige Marble Floor Tile	NAD
06	Throughout	Ceramic Wall Tile Backing	NAD
08	Throughout	Terrazzo Flooring	NAD
10	Throughout	2'x4' Ceiling Tile	NAD
11	Throughout	Brick Mortar	NAD
12	Throughout	CMU Mortar	NAD
20	Throughout	Mastic to 4" Black Cove Base (Brown)	NAD
21	Throughout	4" Black Cove Base	NAD

**Bold = Positive for ACM**      NAD = No Asbestos Detected      NA/PS = Not analyzed/ positive sample

**Note:** <sup>1</sup> Not affected by current scope of work.

### 4.2 CONDITION AND FRIABILITY ASSESSMENT TABLE

For each inspection conducted, the inspector classifies ACM or Assumed ACM materials by friability and condition. This helps to determine the extent of damage in certain areas as well as the potential for further damage and Asbestos release due to disturbance of the material.

**Table 4.2 – Condition and Friability Assessment**

Location	Material	Quantity	Friability	Condition
First Floor, Computer Room 113, Library 114 and Classroom 115	Sink Undercoating (Black)	20 SF	No	Good
First Floor, Corridor 100A, Computer Room 113, Closet 114 and Classroom 115	Mastic Associated with 12"x12" Tan & Brown Floor Tiles (Brown/Black) and Contaminated 12"x12" Floor Tiles (Tan & Brown)	2,100 SF	No	Good

#### Condition Definitions:

**Good:** None/Minimal apparent damage to ACM

**Fair:** Up to 10% localized damage or up to 25% of the entire ACM is damaged

**Poor:** Over 10% localized damage or over 25% of the entire ACM is damaged





# Final Report for Environmental Inspection Services

## 4.3 SAMPLE ANALYSIS TABLE

Laboratory analysis results, in tabular form, are included in Appendix A.

### B. LEAD-BASED PAINT

The lead inspection involved a thorough visual examination of all accessible areas impacted by the proposed Innovation Suite project at the Dows Lane Elementary School. The following suspect surfaces were tested for lead content:

Test Number	Sample Location	Building Component	Color	Substrate	Condition	Lead Content (mg/cm2)
1	Calibration Check @ 1.0	---	---	---	---	1.3
2	Calibration Check @ 1.0	---	---	---	---	1.2
3	Calibration Check @ 1.0	---	---	---	---	1.1
4	Calibration Check @ 0.0	---	---	---	---	0.2
5	Calibration Check @ 0.0	---	---	---	---	0.2
6	Calibration Check @ 0.0	---	---	---	---	0.2
7	Library	Door	Varnish	Wood	Good	-0.4
8	Library	Door frame	Green	Metal	Good	0.0
9	Library	Wall	Beige	Cinder Block	Good	0.0
10	Library	Electrical conduit	Beige	Metal	Good	0.3
11	Library	Wall	Beige	Gypsum	Good	0.0
12	Library	Wall	Beige	Cinder Block	Good	0.3
13	Library	Cabinet	Varnish	Wood	Good	-0.4
14	Library	Window frame	Green	Metal	Good	-0.1
15	Library	Soffit	White	Plaster	Good	-0.1
16	Library	Wall	Beige	Cinder Block	Good	-0.4
17	Library	Window frame	Green	Metal	Good	-0.3
18	Library	Wall	Beige	Cinder Block	Good	-0.2
19	Library	Pipe	White	Metal	Good	0.2
20	Library	Soffit	White	Plaster	Good	-0.3
21	Library	Unit ventilator	Black	Metal	Good	0.0
22	Library	Unit ventilator	Gray	Metal	Good	-0.1
23	Computer Lab	Door	Varnish	Wood	Good	-0.3
24	Computer Lab	Door frame	Green	Metal	Good	0.4
25	Computer Lab	Wall	Beige	Cinder Block	Good	-0.2





## Final Report for Environmental Inspection Services

Test Number	Sample Location	Building Component	Color	Substrate	Condition	Lead Content (mg/cm <sup>2</sup> )
26	Computer Lab	Cabinet	Varnish	Wood	Good	-0.2
27	Computer Lab	Wall	Beige	Cinder Block	Good	0.1
28	Computer Lab	Unit ventilator	Black	Metal	Good	0.0
29	Computer Lab	Unit ventilator	Gray	Metal	Good	0.0
30	Computer Lab	Window frame	Green	Metal	Good	-0.3
31	Computer Lab	Wall	Beige	Gypsum	Good	0.0
32	Computer Lab	Wall	Beige	Cinder Block	Good	0.1
33	Computer Lab Bathroom	Door	Varnish	Wood	Good	-0.2
34	Computer Lab Bathroom	Door frame	Green	Metal	Good	0.2
35	Computer Lab Bathroom	Wall	Beige	Cinder Block	Good	0.0
36	Computer Lab Bathroom	Wall	Beige	Cinder Block	Good	0.0
37	Computer Lab Bathroom	Wall	Beige	Cinder Block	Good	-0.3
38	Computer Lab Bathroom	Wall	Beige	Cinder Block	Good	0.0
39	Computer Lab Bathroom	Ceiling	Beige	Plaster	Good	-0.4
40	Library Adults Bathroom	Door	Varnish	Wood	Good	-0.4
41	Library Adults Bathroom	Door frame	Green	Metal	Good	0.3
42	Library Adults Bathroom	Wall	Beige	Cinder Block	Good	-0.1
43	Library Adults Bathroom	Wall	Beige	Cinder Block	Good	0.0
44	Library Adults Bathroom	Radiator cover	Green	Metal	Good	0.0
45	Library Adults Bathroom	Wall	Beige	Cinder Block	Good	0.0
46	Library Adults Bathroom	Wall	Beige	Cinder Block	Good	0.1
47	Library Adults Bathroom	Ceiling	Beige	Plaster	Good	-0.2
48	Library Storage	Door	Varnish	Wood	Good	-0.3
49	Library Storage	Door frame	Green	Metal	Good	0.2
50	Library Storage	Wall	White	Cinder Block	Good	0.0
51	Library Storage	Radiator cover	White	Metal	Good	0.3
52	Library Storage	Cabinet	White	Wood	Good	0.0
53	Library Storage	Wall	White	Cinder Block	Good	-0.1
54	Library Storage	Wall	White	Cinder Block	Good	-0.2





## Final Report for Environmental Inspection Services

Test Number	Sample Location	Building Component	Color	Substrate	Condition	Lead Content (mg/cm2)
55	Library Storage	Wall	White	Cinder Block	Good	-0.1
56	Library Storage	Pipe	White	Metal	Good	0.0
57	Library Storage	Window frame	Green	Metal	Good	-0.8
58	Library Storage	Ceiling	White	Plaster	Good	0.0
59	Library Storage	Access panel	White	Metal	Good	0.0
60	School Monitors Office	Door	Varnish	Wood	Good	-0.3
61	School Monitors Office	Door frame	Pink	Metal	Good	0.0
62	School Monitors Office	Wall	Beige	Cinder Block	Good	0.0
63	School Monitors Office	Cabinet	Beige	Wood	Good	-0.1
64	School Monitors Office	Radiator cover	Beige	Metal	Good	0.0
65	School Monitors Office	Pipe Insulation	Beige	Fiberglass	Good	0.2
66	School Monitors Office	Wall	Beige	Cinder Block	Good	0.0
67	School Monitors Office	Beam	Beige	Metal	Good	-0.1
68	School Monitors Office	Wall	Beige	Cinder Block	Good	-0.1
69	School Monitors Office	Wall	Beige	Cinder Block	Good	-0.1
70	School Monitors Office	Ceiling	Beige	Plaster	Good	-0.4
71	School Monitors Office	Access panel	Beige	Metal	Good	-0.1
72	Library Students Bathroom	Door	Varnish	Wood	Good	-0.2
73	Library Students Bathroom	Door frame	Green	Metal	Good	0.1
74	Library Students Bathroom	Wall	Beige	Cinder Block	Good	0.0
75	Library Students Bathroom	Wall	Beige	Cinder Block	Good	0.0
76	Library Students Bathroom	Wall	Beige	Cinder Block	Good	-0.1
77	Library Students Bathroom	Wall	Beige	Cinder Block	Good	-0.4
78	Library Students Bathroom	Ceiling	Beige	Plaster	Good	-0.4
79	Library Students Bathroom	Radiator cover	Green	Metal	Good	-0.1





## Final Report for Environmental Inspection Services

Test Number	Sample Location	Building Component	Color	Substrate	Condition	Lead Content (mg/cm2)
80	Library Foyer	Wall	Beige	Cinder Block	Good	-0.1
81	Library Foyer	Wall	Beige	Cinder Block	Good	-0.1
82	Library Foyer	Wall	Beige	Cinder Block	Good	-0.3
83	Room G2	Door	Varnish	Wood	Good	0.0
84	Room G2	Door frame	Green	Metal	Good	0.0
85	Room G2	Soffit	Beige	Gypsum	Good	-0.1
86	Room G2	Wall	Beige	Gypsum	Good	-0.1
87	Room G2	Baseboard	Varnish	Wood	Good	-0.2
88	Room G2	Wall	Beige	Gypsum	Good	-0.2
89	Room G2	Wall	Beige	Gypsum	Good	-0.5
90	Room G2	Window frame	Green	Metal	Good	-1.0
91	Room G2	Cabinet	Varnish	Wood	Good	0.1
92	Room G2	Baseboard	Varnish	Wood	Good	-0.2
93	Room G2	Board frame	Varnish	Wood	Good	-0.2
94	Room G2	Wall	Beige	Gypsum	Good	-0.2
95	Room G2	Baseboard	Varnish	Wood	Good	-0.2
96	Hallway by Room G2	Wall	Beige	Gypsum	Good	-0.1
97	Hallway by Room G2	Wall	Beige	Gypsum	Good	-0.2
98	Hallway by Room G2	Wall	Beige	Gypsum	Good	-0.1
99	Hallway by Room G2	Wall	Beige	Gypsum	Good	-0.5
100	Calibration Check @ 1.0	---	---	---	---	1.2
101	Calibration Check @ 1.0	---	---	---	---	1.3
102	Calibration Check @ 1.0	---	---	---	---	1.3

### C. PCB-CONTAINING MATERIAL

The PCB Inspection involved a thorough visual examination of all areas that may be impacted by the proposed Innovation Suite project at the Dows Lane Elementary School. The following suspect materials were tested for PCB content:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
None			

**Bold = Positive for PCB**

ND = No PCB Detected





## ***Final Report for Environmental Inspection Services***

### **5.0 AREAS NOT ACCESSIBLE**

During the inspection the following areas were not accessible:

Spaces within Walls/Floors/Ceilings: No destructive sampling was performed on concealed spaces in walls to access plenum, chases etc. It should be assumed that asbestos containing materials may exist in these spaces. Any suspect materials encountered during work should be sampled for analysis before work continues.

Building Envelope: No destructive sampling was performed on the building envelope. It should be assumed that asbestos, lead and PCB containing materials may exist in these spaces. Any suspect materials encountered during work should be sampled for analysis before work continues.

### **6.0 CONCLUSIONS AND RECOMMENDATIONS**

ACM has been identified in this inspection that may be impacted as part of the proposed Innovation Suite project at the Dows Lane Elementary School.

No LBP was identified in this inspection that may be impacted as part of the proposed Innovation Suite project at the Dows Lane Elementary School.

The ACM, LBP & PCB inspection was conducted at the request of Irvington Union Free School District for the proposed Innovation Suite project at the Dows Lane Elementary School. Any change in the scope of work will require further investigation to accurately classify any additional ACM, LBP or PCBs resulting from the modified or updated scope of work.

### **7.0 ASBESTOS ABATEMENT COST ESTIMATE**

This cost estimate is based on compliance with Industrial Code Rule 56 (12 NYCRR Part 56), standard industry practices and projects of similar type and complexity. Performing the work in stages or phases, rather than as one continuous process may result in additional mobilization costs. The following factors have been considered:

This cost estimate is exclusively limited to the Innovation Suite project at the Dows Lane Elementary School. Any alteration to the scope of work will require further investigation and may affect the cost estimate presented.

<b>Location</b>	<b>Material Description / Color</b>	<b>Quantity</b>	<b>Unit Rate</b>	<b>Total</b>
First Floor, Computer Room 113, Library 114 and Classroom 115	Sink Undercoating (Black)	20 SF	\$20.00/SF	\$400.00
First Floor, Corridor 100A, Computer Room 113, Closet 114C and Classroom 115	Mastic Associated with 12"x12" Tan & Brown Floor Tiles (Brown/Black) and Contaminated 12"x12" Floor Tiles (Tan & Brown)	2,015 SF	\$10.00/SF	\$20,150.00





## ***Final Report for Environmental Inspection Services***

Location	Material Description / Color	Quantity	Unit Rate	Total
		Subtotal		\$20,550.00
		Mobilization		\$1,000.00
		<b>Total</b>		<b>\$21,550.00</b>

SF = Square Feet

### **8.0 REPORT CERTIFICATIONS**

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of WSP's efforts for the environmental inspection work for the Dows Lane Elementary School, Innovation Suite project.


Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of WSP's site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which WSP is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions solely upon WSP's visual observations of accessible areas, laboratory test data, and current regulatory requirements. These conclusions are intended exclusively for the purpose stated herein and the site indicated for the project indicated.

Prepared by:

  
\_\_\_\_\_  
Josue Garcia  
NYS DOL Inspector

Reviewed by:

  
\_\_\_\_\_  
Craig Napolitano, CHMM  
Vice President, Hazmat & IH Services





**APPENDIX A:  
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM**





## Final Report for Environmental Inspection Services

**APPENDIX A**  
**SAMPLE ANALYSIS RESULTS IN TABULAR FORM**  
**DOWS LANE ELEMENTARY SCHOOL**  
**INNOVATION SUITE**  
**6 DOWS LANE**  
**IRVINGTON, NY 10533**

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
<b>WSP Sampled on 02/17/2021</b>					
01	01	Basement, Classroom G2	Gypsum Board (Gray)	NAD	N/A
	02	Basement, Classroom G2		NAD	N/A
02	03	Basement, Classroom G2	Joint Compound (White)	NAD	N/A
	04	Basement, Classroom G2		NAD	N/A
03	05	Basement, Classroom G2	Mastic Associated with 12"x12" Beige Floor Tile (Black)	NAD	NAD
	06	Basement, Classroom G2		NAD	NAD
04	07	Basement, Classroom G2	12"x12" Floor Tile (Beige)	NAD	NAD
	08	Basement, Classroom G2		NAD	NAD
05	09	Basement, Classroom G2	2'x4' Square Design Ceiling Tile (White)	NAD	NAD
	10	Basement, Classroom G2		NAD	NAD
06	11	Basement, Corridor G00	1'x1' Spline Ceiling Tile White)	NAD	NAD
	12	Basement, Corridor G00		NAD	NAD
07	13	Basement, Classroom G2	Spray-on Fireproofing (Gray)	NAD	N/A
	14	Basement, Classroom G2		NAD	N/A
	15	Basement, Classroom G2		NAD	N/A
08	16	First Floor, Closet 114B	Ceiling Plaster (White Coat)	NAD	N/A
	17	First Floor, Closet 114C		NAD	N/A
	18	First Floor, Vestibule by Closet 114C		NAD	N/A

**Bold = Positive for ACM**  
NAD = No Asbestos Detected

N/A = Not Applicable  
NA/PS = Not analyzed/ positive sample





## Final Report for Environmental Inspection Services

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
09	19	First Floor, Closet 114B	Ceiling Plaster (Brown Coat)	NAD	N/A
	20	First Floor, Closet 114C		NAD	N/A
	21	First Floor, Vestibule by Closet 114C		NAD	N/A
10	22	First Floor, Library 114	Soffit Plaster (White Coat)	NAD	N/A
	23	First Floor, Library 114		NAD	N/A
	24	First Floor, Library 114		NAD	N/A
11	25	First Floor, Library 114	Soffit Plaster (Brown Coat)	NAD	N/A
	26	First Floor, Library 114		NAD	N/A
	27	First Floor, Library 114		NAD	N/A
12	28	First Floor, Library 114	Tectum Ceiling Deck (Tan/Gray)	NAD	N/A
	29	First Floor, Computer Room 113		NAD	N/A
13	30	First Floor, Toilet Room 115A	Ceramic Wall Tile Grout (White)	NAD	N/A
	31	First Floor, Toilet Room 113A		NAD	N/A
14	32	First Floor, Toilet Room 115A	Ceramic Wall Tile Backing (Beige)	5.60% Chrysotile	N/A
	33	First Floor, Toilet Room 113A		NA/PS	N/A
15	34	First Floor, Toilet Room 115A	Ceramic Floor Tile Mortar (Gray)	NAD	N/A
	35	First Floor, Toilet Room 113A		NAD	N/A
16	36	First Floor, Classroom 115	Sink Undercoating (Black)	<1% Chrysotile	NA/PS
	37	First Floor, Library 114		1.60% Chrysotile	NA/PS
17	38	First Floor, Classroom 115	Mastic Associated with 12"x12" Tan & Brown Floor Tiles (Black/Brown)	<1% Chrysotile	NA/PS
	39	First Floor, Computer Room 113		1.20% Chrysotile	NA/PS
18	40	First Floor, Classroom 115	12"x12" Floor Tile (Tan)	NAD Contaminated ACM	NAD Contaminated ACM
	41	First Floor, Computer Room 113		NAD Contaminated ACM	NAD Contaminated ACM

**Bold = Positive for ACM**  
NAD = No Asbestos Detected

N/A = Not Applicable  
NA/PS = Not analyzed/ positive sample





## Final Report for Environmental Inspection Services

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
19	42	First Floor, Classroom 115	12"x12" Floor Tile (Brown)	<b>NAD Contaminated ACM</b>	<b>NAD Contaminated ACM</b>
	43	First Floor, Computer Room 113		<b>NAD Contaminated ACM</b>	<b>NAD Contaminated ACM</b>
20	44	First Floor, Library 114	Mastic Associated with Carpet (Black)	<1% Chrysotile	<1% Chrysotile
	45	First Floor, Library 114		<1% Chrysotile	<1% Chrysotile
21	46	First Floor, Library 114	Leveling Compound (Gray)	NAD	N/A
	47	First Floor, Library 114		NAD	N/A
22	48	First Floor, Classroom 115	Mastic Associated with 4" Light Brown Cove Base Molding (Brown)	NAD	NAD
	49	First Floor, Computer Room 113		NAD	NAD
23	50	First Floor, Classroom 115	4" Cove Base Molding (Light Brown)	NAD	NAD
	51	First Floor, Computer Room 113		NAD	NAD

**Bold = Positive for ACM**  
NAD = No Asbestos Detected

N/A = Not Applicable  
NA/PS = Not analyzed/ positive sample





**APPENDIX B:  
ASBESTOS BULK SAMPLE FIELD DATA SHEETS WITH  
CHAIN OF CUSODY & LABORATORY RESULTS**





# EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018

Tel/Fax: (212) 290-0051 / (212) 290-0058

<http://www.EMSL.com / manhattanlab@emsl.com>

EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

Attention: Alex Smolyar

WSP USA Solutions Inc

96 Morton Street

8th floor

New York, NY 10014

Phone: (212) 612-7900

Fax:

Received Date: 02/19/2021 8:50 AM

Analysis Date: 02/22/2021 - 02/23/2021

Collected Date: 02/17/2021

Project: 31402880.008/ IRVINGTON UFSD/ DOWS LANE ELEMENTARY SCHOOL

## Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 01 032102557-0001		Description Homogeneity	BASEMENT CLASSROOM G2 - GYPSUM BOARD, GRAY Heterogeneous		
PLM NYS 198.1 Friable	02/22/2021	Brown/ Gray	20.00% Cellulose	15.00% Ca Carbonate 35.00% Gypsum 3.00% Mica 20.00% Non-fibrous (other) 7.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 02 032102557-0002		Description Homogeneity	BASEMENT CLASSROOM G2 - GYPSUM BOARD, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	Brown/ Gray	10.00% Cellulose	20.00% Ca Carbonate 45.00% Gypsum 25.00% Non-fibrous (other)	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 03 032102557-0003		Description Homogeneity	BASEMENT CLASSROOM G2 - JOINT COMPOUND, WHITE Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	White		35.00% Ca Carbonate 15.00% Mica 20.00% Non-fibrous (other) 20.00% Perlite 10.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 04 032102557-0004		Description Homogeneity	BASEMENT CLASSROOM G2 - JOINT COMPOUND, WHITE Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	White		60.00% Ca Carbonate 5.00% Mica 35.00% Non-fibrous (other)	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

Initial report from: 02/23/2021 07:12:19





# EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018

Tel/Fax: (212) 290-0051 / (212) 290-0058

<http://www.EMSL.com> / [manhattanlab@emsl.com](mailto:manhattanlab@emsl.com)

EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report:Asbestos Analysis of Bulk Material

		Non-Asbestos			
Test	Analyzed Date	Color	Fibrous	Non-Fibrous	Asbestos
Sample ID 05		Description	BASEMENT CLASSROOM G2 - MASTIC ASSOCIATED WITH 12" X 12" BIEGE FLOOR TILE, BLACK		
032102557-0005		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Black		100.00% Other	None Detected
Sample ID 06		Description	BASEMENT CLASSROOM G2 - MASTIC ASSOCIATED WITH 12" X 12" BIEGE FLOOR TILE, BLACK		
032102557-0006		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Black		100.00% Other	None Detected
Sample ID 07		Description	BASEMENT CLASSROOM G2 - 12" X 12" FLOOR TILE, BEIGE		
032102557-0007		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Beige		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Beige		100.00% Other	None Detected
Sample ID 08		Description	BASEMENT CLASSROOM G2 - 12" X 12" FLOOR TILE, BEIGE		
032102557-0008		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Beige		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Beige		100.00% Other	None Detected
Sample ID 09		Description	BASEMENT CLASSROOM G2 - 2' X 4' SQUARE DESIGN CEILING TILE, WHITE		
032102557-0009		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	White	31.00% Min. Wool	69.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	White		100.00% Other	None Detected
Sample ID 10		Description	BASEMENT CLASSROOM G2 - 2' X 4' SQUARE DESIGN CEILING TILE, WHITE		
032102557-0010		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	White	48.00% Min. Wool	52.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	White		100.00% Other	None Detected

Initial report from: 02/23/2021 07:12:19





# EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018

Tel/Fax: (212) 290-0051 / (212) 290-0058

<http://www.EMSL.com> / [manhattanlab@emsl.com](mailto:manhattanlab@emsl.com)

EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report: Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 11 032102557-0011		Description Homogeneity	BASEMENT CORRIDOR G00 - 1' X 1' SPLINE CEILING TILE, WHITE Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	White	24.00% Min. Wool	76.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	White		100.00% Other	None Detected
Sample ID 12 032102557-0012		Description Homogeneity	BASEMENT CORRIDOR G00 - 1' X 1' SPLINE CEILING TILE, WHITE Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	White	23.00% Min. Wool	77.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	White		100.00% Other	None Detected
Sample ID 13 032102557-0013		Description Homogeneity	BASEMENT CLASSROOM G2 - SPRAY-ON FIREPROOFING, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Gray	30.00% Cellulose	25.00% Ca Carbonate 20.00% Non-fibrous (other) 20.00% Perlite 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 14 032102557-0014		Description Homogeneity	BASEMENT CLASSROOM G2 - SPRAY-ON FIREPROOFING, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Gray	30.00% Cellulose	25.00% Ca Carbonate 20.00% Non-fibrous (other) 20.00% Perlite 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 15 032102557-0015		Description Homogeneity	BASEMENT CLASSROOM G2 - SPRAY-ON FIREPROOFING, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	Gray	40.00% Cellulose	25.00% Ca Carbonate 35.00% Non-fibrous (other)	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

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# EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018

Tel/Fax: (212) 290-0051 / (212) 290-0058

<http://www.EMSL.com> / [manhattanlab@emsl.com](mailto:manhattanlab@emsl.com)

EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report: Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 16 032102557-0016		Description Homogeneity	FIRST FLOOR CLOSET 114B - CEILING PLASTER, WHITE COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	White		40.00% Ca Carbonate 55.00% Non-fibrous (other) 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 17 032102557-0017		Description Homogeneity	FIRST FLOOR CLOSET 114C - CEILING PLASTER, WHITE COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	White		40.00% Ca Carbonate 55.00% Non-fibrous (other) 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 18 032102557-0018		Description Homogeneity	FIRST FLOOR VESTIBULE BY CLOSET 114C - CEILING PLASTER, WHITE COAT Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	White		45.00% Ca Carbonate 55.00% Non-fibrous (other)	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 19 032102557-0019		Description Homogeneity	FIRST FLOOR CLOSET 114B - CEILING PLASTER, BROWN COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Brown		25.00% Ca Carbonate 5.00% Mica 50.00% Non-fibrous (other) 20.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 20 032102557-0020		Description Homogeneity	FIRST FLOOR CLOSET 114C - CEILING PLASTER, BROWN COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Brown		20.00% Ca Carbonate 5.00% Mica 50.00% Non-fibrous (other) 25.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

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EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 21 032102557-0021		Description Homogeneity	FIRST FLOOR VESTIBULE BY CLOSET 114C - CEILING PLASTER, BROWN COAT Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	Gray		20.00% Ca Carbonate 4.00% Mica 56.00% Non-fibrous (other) 20.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 22 032102557-0022		Description Homogeneity	FIRST FLOOR LIBRARY 114 - SOFFIT PLASTER, WHITE COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	White		35.00% Ca Carbonate 60.00% Non-fibrous (other) 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 23 032102557-0023		Description Homogeneity	FIRST FLOOR LIBRARY 114 - SOFFIT PLASTER, WHITE COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	White		40.00% Ca Carbonate 55.00% Non-fibrous (other) 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 24 032102557-0024		Description Homogeneity	FIRST FLOOR LIBRARY 114 - SOFFIT PLASTER, WHITE COAT Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	White		25.00% Ca Carbonate 71.00% Non-fibrous (other) 4.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 25 032102557-0025		Description Homogeneity	FIRST FLOOR LIBRARY 114 - SOFFIT PLASTER, BROWN COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Brown		15.00% Ca Carbonate 5.00% Mica 55.00% Non-fibrous (other) 25.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

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EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 26 032102557-0026		Description Homogeneity	FIRST FLOOR LIBRARY 114 - SOFFIT PLASTER, BROWN COAT Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Brown		15.00% Ca Carbonate 5.00% Mica 55.00% Non-fibrous (other) 25.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 27 032102557-0027		Description Homogeneity	FIRST FLOOR LIBRARY 114 - SOFFIT PLASTER, BROWN COAT Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	Brown		20.00% Ca Carbonate 4.00% Mica 51.00% Non-fibrous (other) 25.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 28 032102557-0028		Description Homogeneity	FIRST FLOOR LIBRARY 114 - TECTUM CEILING DECK, TAN/ GRAY Heterogeneous		
PLM NYS 198.1 Friable	02/22/2021	Brown/ Gray	35.00% Cellulose	30.00% Ca Carbonate 30.00% Non-fibrous (other) 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 29 032102557-0029		Description Homogeneity	FIRST FLOOR COMPUTER ROOM 113 - TECTUM CEILING DECK, TAN/ GRAY Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	Brown/ White	35.00% Cellulose	25.00% Ca Carbonate 40.00% Non-fibrous (other)	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 30 032102557-0030		Description Homogeneity	FIRST FLOOR TOILER ROOM 115A - CERAMIC WALL TILE GROUT, WHITE Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	White	25.00% Min. Wool	40.00% Ca Carbonate 25.00% Non-fibrous (other) 10.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

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EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 31 032102557-0031		Description Homogeneity	FIRST FLOOR TOILER ROOM 113A - CERAMIC WALL TILE GROUT, WHITE Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	White		40.00% Ca Carbonate 50.00% Non-fibrous (other) 10.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 32 032102557-0032		Description Homogeneity	FIRST FLOOR TOILER ROOM 115A - CERAMIC WALL TILE BACKING, BEIGE Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Beige	None	40.00% Ca Carbonate 44.40% Non-fibrous (other) 10.00% Quartz	5.60% Chrysotile
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 33 032102557-0033		Description Homogeneity	FIRST FLOOR TOILER ROOM 113A - CERAMIC WALL TILE BACKING, BEIGE		
PLM NYS 198.1 Friable	02/22/2021				Positive Stop (Not Analyzed)
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 34 032102557-0034		Description Homogeneity	FIRST FLOOR TOILER ROOM 115A - CERAMIC FLOOR TILE MORTAR, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Gray	5.00% Cellulose	30.00% Ca Carbonate 3.00% Mica 47.00% Non-fibrous (other) 15.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 35 032102557-0035		Description Homogeneity	FIRST FLOOR TOILER ROOM 113A - CERAMIC FLOOR TILE MORTAR, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	Gray		25.00% Ca Carbonate 3.00% Mica 27.00% Non-fibrous (other) 45.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

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EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 36 032102557-0036		Description Homogeneity	FIRST FLOOR CLASSROOM 115 - SINK UNDERCOATING, BLACK Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Black	None	100.00% Other	Inconclusive : <1% Chrysotile
TEM NYS 198.4 NOB	02/22/2021				Positive Stop (Not Analyzed)
Sample ID 37 032102557-0037		Description Homogeneity	FIRST FLOOR LIBRARY 114 - SINK UNDERCOATING, BLACK Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Black	None	98.40% Other	1.60% Chrysotile
TEM NYS 198.4 NOB	02/22/2021				Positive Stop (Not Analyzed)
Sample ID 38 032102557-0038		Description Homogeneity	FIRST FLOOR CLASSROOM 115 - MASTIC ASSOCIATED WITH 12" X 12" TAN & BROWN FLOOR TILES, BROWN/ BLACK Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown	None	100.00% Other	Inconclusive : <1% Chrysotile
TEM NYS 198.4 NOB	02/22/2021				Positive Stop (Not Analyzed)
Sample ID 39 032102557-0039		Description Homogeneity	FIRST FLOOR COMPUTER ROOM 113 - MASTIC ASSOCIATED WITH 12" X 12" TAN & BROWN FLOOR TILES, BROWN/ BLACK Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown	None	98.80% Other	1.20% Chrysotile
TEM NYS 198.4 NOB	02/22/2021				Positive Stop (Not Analyzed)
Sample ID 40 032102557-0040		Description Homogeneity	FIRST FLOOR CLASSROOM 115 - 12" X 12" FLOOR TILE, TAN Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Tan		100.00% Other	None Detected
Sample ID 41 032102557-0041		Description Homogeneity	FIRST FLOOR COMPUTER ROOM 113 - 12" X 12" FLOOR TILE, TAN Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Tan		100.00% Other	None Detected

Initial report from: 02/23/2021 07:12:19





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<http://www.EMSL.com / manhattanlab@emsl.com>

EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 42 032102557-0042		Description Homogeneity	FIRST FLOOR CLASSROOM 115 - 12" X 12" FLOOR TILE, BROWN Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Brown		100.00% Other	None Detected
Sample ID 43 032102557-0043		Description Homogeneity	FIRST FLOOR COMPUTER ROOM 113 - 12" X 12" FLOOR TILE, BROWN Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Brown		100.00% Other	None Detected
Sample ID 44 032102557-0044		Description Homogeneity	FIRST FLOOR LIBRARY 114 - MASTIC ASSOCIATED WITH CARPET, BLACK Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Black	None	100.00% Other	Inconclusive : <1% Chrysotile
TEM NYS 198.4 NOB	02/23/2021	Black	None	100.00% Other	<1% Chrysotile
Sample ID 45 032102557-0045		Description Homogeneity	FIRST FLOOR LIBRARY 114 - MASTIC ASSOCIATED WITH CARPET, BLACK Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Black	None	100.00% Other	Inconclusive : <1% Chrysotile
TEM NYS 198.4 NOB	02/23/2021	Black	None	100.00% Other	<1% Chrysotile
Sample ID 46 032102557-0046		Description Homogeneity	FIRST FLOOR LIBRARY 114 - LEVELING COMPOUND, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/22/2021	Gray		35.00% Ca Carbonate 3.00% Mica 55.00% Non-fibrous (other) 7.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 47 032102557-0047		Description Homogeneity	FIRST FLOOR LIBRARY 114 - LEVELING COMPOUND, GRAY Homogeneous		
PLM NYS 198.1 Friable	02/23/2021	Gray	3.00% Cellulose	40.00% Ca Carbonate 52.00% Non-fibrous (other) 5.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

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EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

## Test Report:Asbestos Analysis of Bulk Material

		Non-Asbestos			
Test	Analyzed Date	Color	Fibrous	Non-Fibrous	Asbestos
Sample ID	48	Description	FIRST FLOOR CLASSROOM 115 - MASTIC ASSOCIATED WITH 4" LIGHT BROWN COVE		
	032102557-0048	Homogeneity	BASE MOLDING BROWN		
			Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Brown		100.00% Other	None Detected
Sample ID	49	Description	FIRST FLOOR COMPUTER ROOM 113 - MASTIC ASSOCIATED WITH 4" LIGHT BROWN		
	032102557-0049	Homogeneity	COVE BASE MOLDING BROWN		
			Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Brown		100.00% Other	None Detected
Sample ID	50	Description	FIRST FLOOR CLASSROOM 115 - 4" COVE BASE MOLDING, LIGHT BROWN		
	032102557-0050	Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Brown		100.00% Other	None Detected
Sample ID	51	Description	FIRST FLOOR COMPUTER ROOM 113 - 4" COVE BASE MOLDING, LIGHT BROWN		
	032102557-0051	Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	02/22/2021	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	02/23/2021	Brown		100.00% Other	None Detected

Initial report from: 02/23/2021 07:12:19





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EMSL Order: 032102557

Customer ID: LBAP78

Customer PO: 31402880.008

Project ID:

### Test Report: Asbestos Analysis of Bulk Material

The samples in this report were submitted to EMSL for analysis by Asbestos Analysis of Bulk Materials via NYS ELAP Approved Methods. The reference number for these samples is the EMSL Order ID above. Please use this reference number when calling about these samples.

#### Report Comments:

Sample Receipt Date: 2/19/2021

Sample Receipt Time: 8:50 AM

Analysis Completed Date: 2/22/2021

Analysis Completed Time: 12:00 PM

#### Analyst(s):

Kerrie Gibson PLM NYS 198.1 Friable (17)

Migena Shehu PLM NYS 198.1 Friable (11)

Angelica Serrano PLM NYS 198.6 NOB (22)

Steven Li TEM NYS 198.4 NOB (18)

#### Samples reviewed and approved by:

James Hall, Laboratory Manager  
or Other Approved Signatory

NOB = Non Friable Organically Bound N/A = Not Applicable VCM = Vermiculite Containing Material

-In New York State, TEM is currently the only method that can be used to determine if NOB materials can be considered or treated as non-asbestos containing.

All samples examined for the presence of vermiculite when analyzed via NYS 198.1.

-NYS Guidelines for Vermiculite containing samples are available at [http://www.wadsworth.org/labcert/elapcert/forms/VermiculiteInterimGuidance\\_Rev070913.pdf](http://www.wadsworth.org/labcert/elapcert/forms/VermiculiteInterimGuidance_Rev070913.pdf) EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples were received in good condition unless otherwise noted.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. This report may contain data that is not covered by the NVLAP accreditation.

Samples analyzed by EMSL Analytical, Inc. New York, NY NYS ELAP 11506, NVLAP Lab Code 101048-9

Initial report from: 02/23/2021 07:12:19





# ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 1 OF 5

**PROJECT NO.:** 31402880-008  
**CLIENT:** Irvington UFS17  
**PROJECT SITE:** Daws Lane Elementary School  
**Project Manager:** A. Smolyar

**LOCATION(S) SURVEYED:** Interior  
**PROPOSED PROJECT:** Innovation Suite  
**DATE(S) OF INSPECTION:** 2/17/21  
**Inspector(s):** J. Garcia & S. Gruber

032102557

WSP  
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341  
 ADDRESS: 96 Morton Street, 8th Floor, New York, NY 10014

**RESULTS TO:** Lb.Labresults@wsp.com

TURNAROUND TIME: ☐ 12 HR. ☐ 24 HR.

☐ 48 HR. ☒ 72 HR.

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
01	01	Basement classroom G2	Gypsum Board, Gray		
	02		↓		
02	03		Joint Compound, White		
	04		↓		
03	05		Mastic Associated with 12"x12"		
	06		Beige Floor Tile, Beige		
04	07		12" x 12" floor Tile, Beige		
	08		↓		
05	09		2'x4' Square Design Ceiling Tile, White		
	10		↓		
06	11	Corridor 600	1'x1' Square Ceiling Tile, White		
	12	↓	↓		

EMSL MANHATTAN LAB  
 RECEIVED  
 2021 FEB 19 AM 8:50

## CHAIN OF CUSTODY

2/22/21

Relinquished by: (print) J. Garcia	(Sign) [Signature]	2/19/21	AM/PM	Relinquished by: (print) [Signature]	(Sign) [Signature]	2/22/21	AM/PM
Received by: (print) David Holbert	(Sign) [Signature]	2/19/21	AM/PM	Received by: (print) [Signature]	(Sign) [Signature]	2/22/21	AM/PM

NOTE: USE STOP AT FIRST POSITIVE METHODOLOGY FOR EVERY HOMOGENEOUS MATERIAL

2-23-21

Order ID: 032102557



# ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 2 OF 5

**PROJECT NO.:** 31402880.008

**CLIENT:** Irvington UFSD

**PROJECT SITE:** Dows Lane Elementary School

**Project Manager:** A Smolyar

**LOCATION(S) SURVEYED:** Interior

**PROPOSED PROJECT:** Innovation Suite

**DATE(S) OF INSPECTION:** 2/17/21

**Inspector(s):** S. Garcia & S. Gruber

032102557

WSP  
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341  
ADDRESS: 96 Morton Street, 8th Floor, New York, NY 10014

**RESULTS TO:** Lb.Labresults@wsp.com

TURNAROUND TIME: ☐ 12 HR. ☐ 24 HR.

☐ 48 HR. ☒ 72 HR.

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
07	13	Basement Classroom G2	Spray on Fireproofing, Gray		
	14	↓	↓		
	15	↓	↓		
08	16	First Floor closet 114B	Ceiling Plaster, white coat		
	17	↓ closet 114C	↓		
	18	↓ Vestibule by closet 114C	↓		
09	19	↓ Closet 114B	Ceiling Plaster, Brown Coat		
	20	↓ closet 114C	↓		
	21	↓ vestibule by closet 114C	↓		
10	22	↓ Library 114	Soffit Plaster, white coat		
	23	↓	↓		
	24	↓	↓		

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2021 FEB 19 AM 8:50

## CHAIN OF CUSTODY

Relinquished by: (print) S. Garcia	(Sign)	2/19/21	AM/PM	Relinquished by: (print)	(Sign)	/ /	AM/PM	Relinquished by: (print)	(Sign)	/ /	AM/PM
Received by: (print) David H. Smolyar	(Sign)	2/19/21	850 AM/PM	Received by: (print)	(Sign)	/ /	AM/PM	Received by: (print)	(Sign)	/ /	AM/PM

NOTE: USE STOP AT FIRST POSITIVE METHODOLOGY FOR EVERY HOMOGENEOUS MATERIAL

A. Lenano 2/22/21

SL 2-23-21

Order ID: 032102557



# ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 3 OF 5

**PROJECT NO.:** 31402880.008

**CLIENT:** Irvington UFSD

**PROJECT SITE:** Dows Lane Elementary School

**Project Manager:** A. Sinolyar

**LOCATION(S) SURVEYED:** Interior

**PROPOSED PROJECT:** Innovation Suite

**DATE(S) OF INSPECTION:** 2/17/21

**Inspector(s):** S. Garcia & S. Grubov

032102557

WSP  
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341  
ADDRESS: 96 Morton Street, 8th Floor, New York, NY 10014

**RESULTS TO:** Lb.Labresults@wsp.com

TURNAROUND TIME: ☐ 12 HR. ☐ 24 HR.

☐ 48 HR. ☒ 72 HR.

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
11	25	First Floor Library 114	Soffit Plaster, Brown / tan		
	26				
	27				
12	28	Library 114	Tectum Ceiling Deck, Tan/Gray		
	29	Computer Room 113			
13	30	Toilet Room 115A	Ceramic Wall Tile Grout, white		
	31	Toilet Room 113A			
14	32	Toilet Room 115A	Ceramic Wall Tile Backing, Beige		
	33	Toilet Room 113A			
15	34	Toilet Room 115A	Ceramic Floor Tile Mortar, Gray		
	35	Toilet Room 113A			

2021 FEB 19 AM 8:50  
E-MAIL MANHATTAN LAB  
RECEIVED

## CHAIN OF CUSTODY

Relinquished by: (print) S. Garcia	(Sign)	2/19/21	AM/PM	Relinquished by: (print) S. Garcia	(Sign)	2/19/21	AM/PM
Received by: (print) David H	(Sign)	2/19/21	8:50 AM/PM	Received by: (print) David H	(Sign)	2/19/21	8:50 AM/PM

NOTE: USE STOP AT FIRST POSITIVE METHODOLOGY FOR EVERY HOMOGENEOUS MATERIAL

2-23-21

Order ID: 032102557





# ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 4 OF 5

**PROJECT NO.:** 31402880.008

**CLIENT:** Irvington UFSID

**PROJECT SITE:** Dows Lane Elementary School

**Project Manager:** A. Sindor

**LOCATION(S) SURVEYED:** Interior

**PROPOSED PROJECT:** Innovation Suite

**DATE(S) OF INSPECTION:** 2/17/21

**Inspector(s):** S. Garcia & S. Gruber

WSP

TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341

ADDRESS: 96 Morton Street, 8th Floor, New York, NY 10014

**RESULTS TO:** Lb.Labresults@wsp.com

TURNAROUND TIME: ☐ 12 HR. ☐ 24 HR.

☐ 48 HR. ☒ 72 HR.

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
16	36	First Floor Classroom 115	Sink Undercoating, Black		
	37	Library 114	↓		
17	38	Classroom 115	Mastic Associated with 12"X12"		
	39	Computer Room 113	Tan & Brown Floor Tiles, Brown/Black		
18	40	Classroom 115	12"X12" Floor Tile, Tan		
	41	Computer Room 113	↓		
19	42	Classroom 115	12"X12" Floor Tile, Brown		
	43	Computer Room 113	↓		
20	44	Library 114	Mastic Associated with Carpet, Black		
	45	↓	↓		
21	46	↓	Leveling compound, Gray		
	47	↓	↓		

EMSL MANHATTAN LAB  
RECEIVED  
2021 FEB 19 AM 8:50

## CHAIN OF CUSTODY

Relinquished by: (Int) S. Garcia	(Sign)	2/19/21	AM/PM	Relinquished by: (print)	(Sign)	/ /	AM/PM	Relinquished by: (print)	(Sign)	/ /	AM/PM
Received by: (Int) David H	(Sign)	2/19/21	250	Received by: (print)	(Sign)	/ /	AM/PM	Received by: (print)	(Sign)	/ /	AM/PM

NOTE: USE STOP AT FIRST POSITIVE METHODOLOGY FOR EVERY HOMOGENEOUS MATERIAL

CL 52-2321

Order ID: 032102557



## ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 5 OF 5

**PROJECT NO.:** 31402880.008

**CLIENT:** Irvington UFSD

**PROJECT SITE:** Dows Lane Elementary School

**Project Manager:** A. Sindyra ✓

**LOCATION(S) SURVEYED** : Interior

**PROPOSED PROJECT:** Innovation Suite

**DATE(S) OF INSPECTION:** 2/17/21

Inspector(s): J. Garcia & S. Gruber

WSP

TELEPHONE NO. : (212) 612-7900 FAX NO.: (212) 363-4341

ADDRESS: 96 Morton Street, 8<sup>th</sup> Floor, New York, NY 10014



RESULTS TO: **Lb.Labresults@wsp.com**

TURNAROUND TIME: ☐ 12 HR. ☐ 24 HR.

☐ 48 HR. ☒ 72 HR.[illegible]

EMSL MANHATTAN LAB  
RECEIVED  
2021 FEB 19 AM 8:50

## CHAIN OF CUSTODY

Relinquished by: (print) J. Garcia	(Sign) 	2/19/21	AM/PM	Relinquished by: (print)	(Sign)	/ /	AM/PM	Relinquished by: (print)	(Sign)	/ /	AM/PM
Received by: (print) David H	(Sign) 	2/19/21	850 AM/PM	Received by: (print)	(Sign)	/ /	AM/PM	Received by: (print)	(Sign)	/ /	AM/PM

NOTE: USE STOP AT FIRST POSITIVE METHODOLOGY FOR EVERY HOMOGENEOUS MATERIAL

OrderID: 032102557

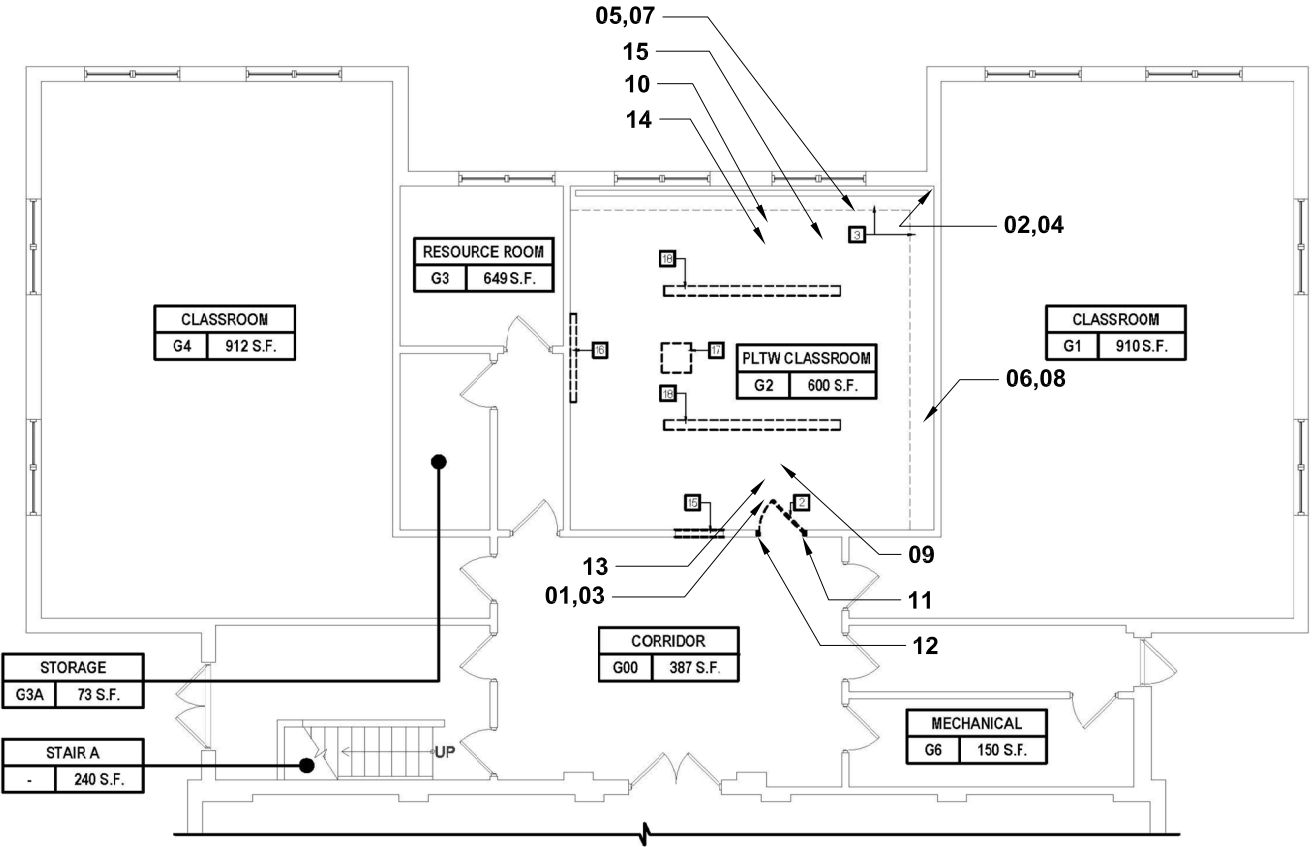
Page 5 Of 10



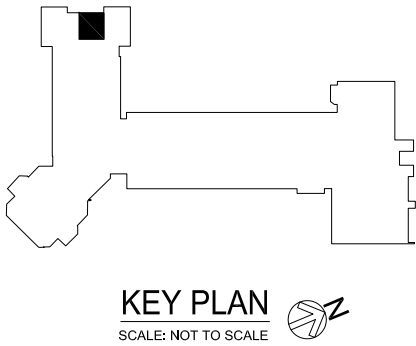


**APPENDIX C:  
ASBESTOS BULK SAMPLE LOCATION DRAWINGS**





**1** PARTIAL BASEMENT FLOOR PLAN  
BSL001 SCALE: 3/16" = 1'-0"±



CONSULTANTS: ENVIRONMENTAL CONSULTANT

**wsp**

WSP USA SOLUTIONS  
500 SUMMIT ROAD, SUITE 450  
VALHALLA, NY 10995  
TELEPHONE: 914.762.1120

MARK	DATE	DESCRIPTION


“ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL ENGINEER”

DESIGNED BY: JG	DRAWN BY: JP	CHECKED BY: JG	REVIEWED BY: JG
PROJECT NO: 31402880,008	DATE: FEBRUARY 2021	SCALE: AS SHOWN	

CLIENT

**Irvington  
Union Free School  
District**

**Innovation Suite Work at  
Dows Lane Elementary  
School**

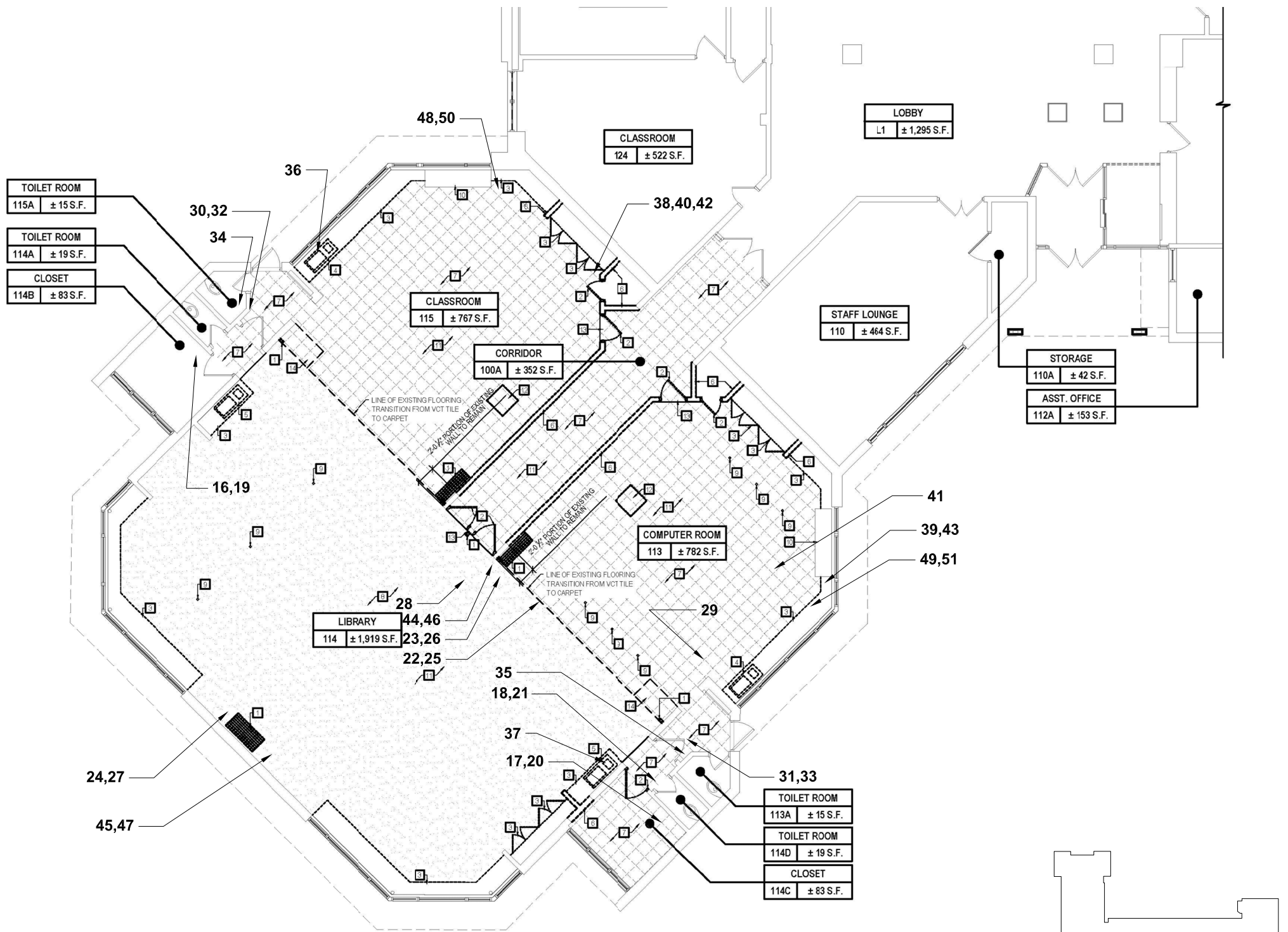


**6 Dows Lane  
Irvington, NY 10533**

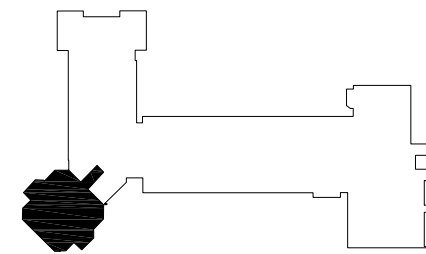
CONTRACT
STATUS
SHEET TITLE
<b>BULK SAMPLE LOCATIONS PARTIAL BASEMENT FLOOR PLAN</b>
DRAWING NO.
<b>BSL001</b>

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**1 PARTIAL FIRST FLOOR PLAN**  
BSL002 SCALE: 3/16" = 1'-0" +/-



**KEY PLAN**  
SCALE: NOT TO SCALE

CONSULTANTS: ENVIRONMENTAL CONSULTANT

**wsp**

WSP USA SOLUTIONS  
500 SUMMIT ROAD, SUITE 450  
VALHALLA, NY 10595  
TELEPHONE: 914.762.1120

MARK	DATE	DESCRIPTION

DESIGNED BY: VR  
PROJECT NO: 31402880,008

DRAWN BY: JP  
DATE: FEBRUARY 2021


CHECKED BY: JG  
SCALE: AS SHOWN

REVIEWED BY: JG

CLIENT

**Irvington  
Union Free School  
District**

Innovation Suite Work at  
Dows Lane Elementary  
School



6 Dows Lane  
Irvington, NY 10533

CONTRACT

STATUS

SHEET TITLE

**BULK SAMPLE LOCATIONS  
PARTIAL  
FIRST FLOOR PLAN**

DRAWING NO.

**BSL002**

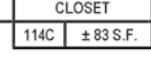
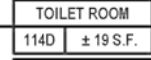
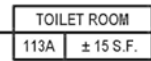
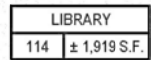
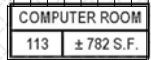
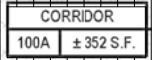
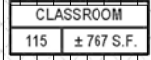
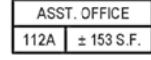
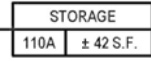
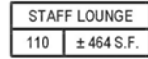
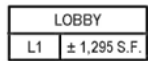
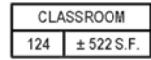
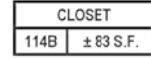
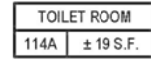
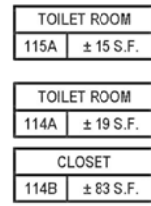
Z:\PROJECTS\CAUTION\BSP-3021\SCHOOL DISTRICT\6 DOWS LANE E\BSL001-BSL002.dwg Lant ModBak Feb 24, 2021 - 9:20am Plotted on Feb 24, 2021 - 10:23am By JLS P02724






**APPENDIX D:  
ASBESTOS CONTAINING MATERIALS LOCATION  
DRAWINGS**





 LOCATION OF ASBESTOS-CONTAINING MASTIC ASSOCIATED WITH 12" X 12" TAN AND BROWN FLOOR TILES (BROWN/BLACK) AND CONTAMINATED 12" X 12" FLOOR TILES (TAN & BROWN)

CONSULTANTS: ENVIRONMENTAL CONSULTANT

[illegible]

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DESIGNED BY: VR	DRAWN BY: JP	CHECKED BY: JG	REVIEWED BY: JG
PROJECT NO.: 31402880.008	DATE: FEBRUARY 2021	SCALE: AS SHOWN	

CLIENT

**Irvington  
Union Free School  
District**

### Innovation Suite Work at Dows Lane Elementary School



6 Dows Lane  
Irvington, NY 10533

CONTRACT
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STATUS
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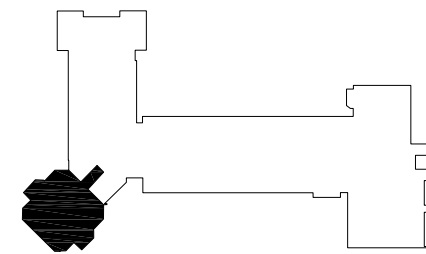
SHEET TITLE

**ASBESTOS CONTAINING  
MATERIALS  
PARTIAL  
FIRST FLOOR PLAN**

DRAWING No. **ACM001**

1 PARTIAL FIRST FLOOR PLAN  
ACM001 SCALE: 3/16" = 1'-0" +/-

**KEY PLAN**  
SCALE: NOT TO SCALE



ny.usgs.gov/data\_ig/nyccad/caddtemp-2021/school DISTRICT31402860.008 - IRVINGTON DOWNS LANE E.SJACM001.dwg Last Modified: Mar 02, 2021 - 3:34pm Plotted on: Mar 02, 2021 - 3:47pm By US/GS652792





**APPENDIX E:  
LEAD XRF SHOT RESULTS**



## XRF Testing Data Report

Project Number	31402880.008
Testing Location	Irvington SD
Inspector	D.Kirnossenko, J. Garcia
Date	February 17, 2021
XRF Model	RMD LPA1
XRF Serial Number	

Test Number	Room	Component Name	Color	Condition	Substrate	Location (Wall/Side)	[Pb] (mg/cm <sup>2</sup> )	Result
1	Irvington Dows Lane Elementary School	Calibrate @ 1.0	2/17/2021 9:08	---	---	---	1.3	POS
2		Calibrate @ 1.0		---	---	---	1.2	POS
3		Calibrate @ 1.0		---	---	---	1.1	POS
4		Calibrate @ 0.0		---	---	---	0.2	NEG
5		Calibrate @ 0.0		---	---	---	0.2	NEG
6		Calibrate @ 0.0		---	---	---	0.2	NEG
7	Library	Door	Varnish	Good	Wood	Wall A	-0.4	NEG
8	Library	Door frame	Green	Good	Metal	Wall A	0	NEG
9	Library	Wall	Beige	Good	Cinder Block	Wall A	0	NEG
10	Library	Electrical conduit	Beige	Good	Metal	Wall A	0.3	NEG
11	Library	Wall	Beige	Good	Gypsum	Wall A	0	NEG
12	Library	Wall	Beige	Good	Cinder Block	Wall B	0.3	NEG
13	Library	Cabinet	Varnish	Good	Wood	Wall B	-0.4	NEG
14	Library	Window frame	Green	Good	Metal	Wall B	-0.1	NEG
15	Library	Soffit	White	Good	Plaster	Wall B	-0.1	NEG
16	Library	Wall	Beige	Good	Cinder Block	Wall C	-0.4	NEG
17	Library	Window frame	Green	Good	Metal	Wall C	-0.3	NEG
18	Library	Wall	Beige	Good	Cinder Block	Wall D	-0.2	NEG
19	Library	Pipe	White	Good	Metal	Wall D	0.2	NEG
20	Library	Soffit	White	Good	Plaster	Wall D	-0.3	NEG
21	Library	Unit ventilator	Black	Good	Metal	Wall D	0	NEG
22	Library	Unit ventilator	Gray	Good	Metal	Wall D	-0.1	NEG



Test Number	Room	Component Name	Color	Condition	Substrate	Location (Wall/Side)	[Pb] (mg/cm <sup>2</sup> )	Result
23	Computer Lab	Door	Varnish	Good	Wood	Wall A	-0.3	NEG
24	Computer Lab	Door frame	Green	Good	Metal	Wall A	0.4	NEG
25	Computer Lab	Wall	Beige	Good	Cinder Block	Wall A	-0.2	NEG
26	Computer Lab	Cabinet	Varnish	Good	Wood	Wall A	-0.2	NEG
27	Computer Lab	Wall	Beige	Good	Cinder Block	Wall B	0.1	NEG
28	Computer Lab	Unit ventilator	Black	Good	Metal	Wall B	0	NEG
29	Computer Lab	Unit ventilator	Gray	Good	Metal	Wall B	0	NEG
30	Computer Lab	Window frame	Green	Good	Metal	Wall B	-0.3	NEG
31	Computer Lab	Wall	Beige	Good	Gypsum	Wall C	0	NEG
32	Computer Lab	Wall	Beige	Good	Cinder Block	Wall D	0.1	NEG
33	Computer Lab Bathroom	Door	Varnish	Good	Wood	Wall A	-0.2	NEG
34	Computer Lab Bathroom	Door frame	Green	Good	Metal	Wall A	0.2	NEG
35	Computer Lab Bathroom	Wall	Beige	Good	Cinder Block	Wall A	0	NEG
36	Computer Lab Bathroom	Wall	Beige	Good	Cinder Block	Wall B	0	NEG
37	Computer Lab Bathroom	Wall	Beige	Good	Cinder Block	Wall C	-0.3	NEG
38	Computer Lab Bathroom	Wall	Beige	Good	Cinder Block	Wall D	0	NEG
39	Computer Lab Bathroom	Ceiling	Beige	Good	Plaster	Ceiling	-0.4	NEG
40	Library Adults Bathroom	Door	Varnish	Good	Wood	Wall A	-0.4	NEG
41	Library Adults Bathroom	Door frame	Green	Good	Metal	Wall A	0.3	NEG
42	Library Adults Bathroom	Wall	Beige	Good	Cinder Block	Wall A	-0.1	NEG
43	Library Adults Bathroom	Wall	Beige	Good	Cinder Block	Wall B	0	NEG
44	Library Adults Bathroom	Radiator cover	Green	Good	Metal	Wall B	0	NEG
45	Library Adults Bathroom	Wall	Beige	Good	Cinder Block	Wall C	0	NEG
46	Library Adults Bathroom	Wall	Beige	Good	Cinder Block	Wall D	0.1	NEG
47	Library Adults Bathroom	Ceiling	Beige	Good	Plaster	Ceiling	-0.2	NEG
48	Library Storage	Door	Varnish	Good	Wood	Wall A	-0.3	NEG
49	Library Storage	Door frame	Green	Good	Metal	Wall A	0.2	NEG



Test Number	Room	Component Name	Color	Condition	Substrate	Location (Wall/Side)	[Pb] (mg/cm <sup>2</sup> )	Result
50	Library Storage	Wall	White	Good	Cinder Block	Wall A	0	NEG
51	Library Storage	Radiator cover	White	Good	Metal	Wall A	0.3	NEG
52	Library Storage	Cabinet	White	Good	Wood	Wall A	0	NEG
53	Library Storage	Wall	White	Good	Cinder Block	Wall B	-0.1	NEG
54	Library Storage	Wall	White	Good	Cinder Block	Wall C	-0.2	NEG
55	Library Storage	Wall	White	Good	Cinder Block	Wall D	-0.1	NEG
56	Library Storage	Pipe	White	Good	Metal	Wall D	0	NEG
57	Library Storage	Window frame	Green	Good	Metal	Wall C	-0.8	NEG
58	Library Storage	Ceiling	White	Good	Plaster	Ceiling	0	NEG
59	Library Storage	Access panel	White	Good	Metal	Ceiling	0	NEG
60	School Monitors Office	Door	Varnish	Good	Wood	Wall A	-0.3	NEG
61	School Monitors Office	Door frame	Pink	Good	Metal	Wall A	0	NEG
62	School Monitors Office	Wall	Beige	Good	Cinder Block	Wall A	0	NEG
63	School Monitors Office	Cabinet	Beige	Good	Wood	Wall A	-0.1	NEG
64	School Monitors Office	Radiator cover	Beige	Good	Metal	Wall A	0	NEG
65	School Monitors Office	Pipe Insulation	Beige	Good	Fiberglass	Wall A	0.2	NEG
66	School Monitors Office	Wall	Beige	Good	Cinder Block	Wall B	0	NEG
67	School Monitors Office	Beam	Beige	Good	Metal	Wall B	-0.1	NEG
68	School Monitors Office	Wall	Beige	Good	Cinder Block	Wall C	-0.1	NEG
69	School Monitors Office	Wall	Beige	Good	Cinder Block	Wall D	-0.1	NEG
70	School Monitors Office	Ceiling	Beige	Good	Plaster	Ceiling	-0.4	NEG
71	School Monitors Office	Access panel	Beige	Good	Metal	Ceiling	-0.1	NEG
72	Library Students Bathroom	Door	Varnish	Good	Wood	Wall A	-0.2	NEG
73	Library Students Bathroom	Door frame	Green	Good	Metal	Wall A	0.1	NEG
74	Library Students Bathroom	Wall	Beige	Good	Cinder Block	Wall A	0	NEG
75	Library Students Bathroom	Wall	Beige	Good	Cinder Block	Wall B	0	NEG
76	Library Students Bathroom	Wall	Beige	Good	Cinder Block	Wall C	-0.1	NEG



Test Number	Room	Component Name	Color	Condition	Substrate	Location (Wall/Side)	[Pb] (mg/cm <sup>2</sup> )	Result
77	Library Students Bathroom	Wall	Beige	Good	Cinder Block	Wall D	-0.4	NEG
78	Library Students Bathroom	Ceiling	Beige	Good	Plaster	Ceiling	-0.4	NEG
79	Library Students Bathroom	Radiator cover	Green	Good	Metal	Wall D	-0.1	NEG
80	Library Foyer	Wall	Beige	Good	Cinder Block	Wall B	-0.1	NEG
81	Library Foyer	Wall	Beige	Good	Cinder Block	Wall C	-0.1	NEG
82	Library Foyer	Wall	Beige	Good	Cinder Block	Wall D	-0.3	NEG
83	Room G2	Door	Varnish	Good	Wood	Wall A	0	NEG
84	Room G2	Door frame	Green	Good	Metal	Wall A	0	NEG
85	Room G2	Soffit	Beige	Good	Gypsum	Wall A	-0.1	NEG
86	Room G2	Wall	Beige	Good	Gypsum	Wall A	-0.1	NEG
87	Room G2	Baseboard	Varnish	Good	Wood	Wall A	-0.2	NEG
88	Room G2	Wall	Beige	Good	Gypsum	Wall B	-0.2	NEG
89	Room G2	Wall	Beige	Good	Gypsum	Wall C	-0.5	NEG
90	Room G2	Window frame	Green	Good	Metal	Wall C	-1	NEG
91	Room G2	Cabinet	Varnish	Good	Wood	Wall C	0.1	NEG
92	Room G2	Baseboard	Varnish	Good	Wood	Wall B	-0.2	NEG
93	Room G2	Board frame	Varnish	Good	Wood	Wall B	-0.2	NEG
94	Room G2	Wall	Beige	Good	Gypsum	Wall D	-0.2	NEG
95	Room G2	Baseboard	Varnish	Good	Wood	Wall D	-0.2	NEG
96	Hallway by Room G2	Wall	Beige	Good	Gypsum	Wall A	-0.1	NEG
97	Hallway by Room G2	Wall	Beige	Good	Gypsum	Wall B	-0.2	NEG
98	Hallway by Room G2	Wall	Beige	Good	Gypsum	Wall C	-0.1	NEG
99	Hallway by Room G2	Wall	Beige	Good	Gypsum	Wall D	-0.5	NEG
100	Irvington Dows Lane Elementary School	Calibrate @ 1.0	2/17/2021 10:35	---	---	---	1.2	POS
101		Calibrate @ 1.0		---	---	---	1.3	POS
102		Calibrate @ 1.0		---	---	---	1.3	POS





Louis Berger

**XRF CALIBRATION CHECK FORM**PAGE 1 OF 1

PROJ. NO.:	<u>31402880, 008 / 31402880, 011</u>	DATE:	<u>2/17/21</u>
PROJECT NAME:	<u>DOWS LN Main St.</u>	INSPECTOR NAME:	<u>DR. JG</u>
CLIENT:	<u>Irvington School District</u>	INSPECTOR SIGNATURE:	<u>[Signature]</u>
SITE:	<u>DOWS LN &amp; Main St Elementary</u>	PROJ. MANAGER:	

LOUIS BERGER  
 TELEPHONE #: (212) 612-7900  
 FAX #: (212) 425-1618  
 ADDRESS: 96 Morton Street 8th Floor  
 New York, NY 10014

XRF MAKE/MODEL: RMD LPA-1; PB200i-#2150

XRF JOB #

NOTES:

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

1.0 mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME: <u>908</u>	TEST # <u>1</u>	<u>2</u>	<u>3</u>	
	XRF READING <u>1.3</u>	<u>1.2</u>	<u>1.1</u>	

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

0.0 mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST # <u>4</u>	<u>5</u>	<u>6</u>	
	XRF READING <u>0.2</u>	<u>0.2</u>	<u>0.2</u>	

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

1.0 mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME: <u>1035</u>	TEST # <u>100</u>	<u>101</u>	<u>102</u>	
	XRF READING <u>1.2</u>	<u>1.3</u>	<u>1.3</u>	

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

<u>1.0</u> mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME: <u>1110</u>	TEST # <u>1</u>	<u>2</u>	<u>3</u>	
	XRF READING <u>1.2</u>	<u>1.2</u>	<u>1.2</u>	

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST # <u>4</u>	<u>5</u>	<u>6</u>	
	XRF READING <u>0.1</u>	<u>0.1</u>	<u>0.1</u>	

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

<u>1.0</u> mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME: <u>1355</u>	TEST # <u>129</u>	<u>130</u>	<u>131</u>	
	XRF READING <u>1.3</u>	<u>1.2</u>	<u>1.2</u>	

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
	XRF READING			

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
	XRF READING			

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
	XRF READING			

**CALIBRATION CHECK – FIELD-END/2-HR/4-HR (circle one)**

mg/cm <sup>2</sup> Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
	XRF READING			

DOWS LN Elementary  
Main St Elementary





# XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PROJECT NO.: 31402880.008

PROJECT NAME:

CLIENT: Irvington School District

PROJECT LOCATION: Dows Ln Elementary

INSPECTOR(S): DR, JG

INSPECTION DATE: 02/17/21

PROJ. MANAGER:

SPACE CHARACTERISTICS:

NOTES:

FLOOR #: ROOM #: ROOM NAME:

SAMPLE #	SUBSTRATE	COMPONENT DESCRIPTION										RE (m)
		COLOR	CONDITION (I/F/P)	COMPONENT	WALL/SIDE DESIGN.	SIDE (L/C/R)	HEIGHT (L/M/U)	COMPONENT REPLICANT	QUANTITY (IF POSITIVE) [SF]	PHOTO	NOTES (DETERIORATION TO FRICTION/IMPACT AND/OR MOISTURE?)	
7	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		DR	A B C D RM CTR FL CL		Library				-0.4	
8	M PL S C CB PG CR B W V CT G FG OTHER:	Green		DF	A B C D RM CTR FL CL						0.0	
9	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						0.0	
10	M PL S C CB PG CR B W V CT G FG OTHER:	beige		EC	A B C D RM CTR FL CL						0.3	
11	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						0.0	
12	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						0.3	
13	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		CAB	A B C D RM CTR FL CL						-0.4	
14	M PL S C CB PG CR B W V CT G FG OTHER:	Green		WF	A B C D RM CTR FL CL						-0.1	
15	M PL S C CB PG CR B W V CT G FG OTHER:	white		SF	A B C D RM CTR FL CL						-0.1	
16	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.4	
17	M PL S C CB PG CR B W V CT G FG OTHER:	Green		WF	A B C D RM CTR FL CL						-0.3	
18	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.2	
19	M PL S C CB PG CR B W V CT G FG OTHER:	white		Pipe	A B C D RM CTR FL CL						0.2	
20	M PL S C CB PG CR B W V CT G FG OTHER:	white		SF	A B C D RM CTR FL CL						-0.3	
21	M PL S C CB PG CR B W V CT G FG OTHER:	black		unit vent	A B C D RM CTR FL CL						0.0	
22	M PL S C CB PG CR B W V CT G FG OTHER:	gray		unit vent	A B C D RM CTR FL CL						-0.1	
23	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		DR	A B C D RM CTR FL CL		Computer Lab				-0.3	
24	M PL S C CB PG CR B W V CT G FG OTHER:	Green		DF	A B C D RM CTR FL CL						0.4	
25	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.2	
26	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		CAB	A B C D RM CTR FL CL						-0.2	





# XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PROJECT NO.:

PROJECT NAME:

CLIENT: Irvington School DistrictPROJECT LOCATION: Dows LN ElementaryINSPECTOR(S): DK; JBINSPECTION DATE: 02/17/21

PROJ. MANAGER:

## SPACE CHARACTERISTICS:

## NOTES:

FLOOR #: \_\_\_\_\_ ROOM #: \_\_\_\_\_ ROOM NAME: \_\_\_\_\_

SAMPLE #	SUBSTRATE	COMPONENT DESCRIPTION										RE- [m]
		COLOR	CONDITION [I/F/P]	COMPONENT	WALL/SIDE DESIGN.	SIDE [L/C/R]	HEIGHT [L/M/U]	COMPONENT REPLICANT	QUANTITY (IF POSITIVE) [SF]	PHOTO	NOTES (DETERIORATION TO FRICTION/IMPACT AND/OR MOISTURE?)	
27	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL			Comp Lab				0.1
28	M PL S C CB PG CR B W V CT G FG OTHER:	Black		Unit vent	A B C D RM CTR FL CL							0.0
29	M PL S C CB PG CR B W V CT G FG OTHER:	Gray		Unit vent	A B C D RM CTR FL CL							0.0
30	M PL S C CB PG CR B W V CT G FG OTHER:	Green		WF	A B C D RM CTR FL CL							-0.3
31	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL							0.0
32	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL							0.1
33	M PL S C CB PG CR B W V CT G FG OTHER:	Varn		DR	A B C D RM CTR FL CL			Comp Lab Bathroom				-0.2
34	M PL S C CB PG CR B W V CT G FG OTHER:	Green		DF	A B C D RM CTR FL CL							0.2
35	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL							0.0
36	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL							0.0
37	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL							-0.3
38	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL							0.0
39	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		CL	A B C D RM CTR FL CL							-0.4
40	M PL S C CB PG CR B W V CT G FG OTHER:	Varn		DR	A B C D RM CTR FL CL			Library Adults Bathroom				-0.2
41	M PL S C CB PG CR B W V CT G FG OTHER:	Green		DF	A B C D RM CTR FL CL							0.3
42	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL							-0.1
43	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL							0.0
44	M PL S C CB PG CR B W V CT G FG OTHER:	Green		RC	A B C D RM CTR FL CL							0.0
45	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL							0.0
46	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL							0.1





# XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PROJECT NO.: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

CLIENT: Irvington School DistrictPROJECT LOCATION: Doug, LN ElementaryINSPECTOR(S): DK; JGINSPECTION DATE: 02/17/21

PROJ. MANAGER: \_\_\_\_\_

## SPACE CHARACTERISTICS:

## NOTES:

FLOOR #: \_\_\_\_\_ ROOM #: \_\_\_\_\_ ROOM NAME: \_\_\_\_\_

SAMPLE #	SUBSTRATE	COMPONENT DESCRIPTION										REMARKS
		COLOR	CONDITION (I/F/P)	COMPONENT	WALL/SIDE DESIGN.	SIDE IL/CR	HEIGHT (L/M/U)	COMPONENT REPLICANT	QUANTITY (IF POSITIVE) [SF]	PHOTO	NOTES (DETERIORATION TO FRICTION/IMPACT AND/OR MOISTURE?)	
47	M PL S C CB PG CR B W V CT G FG OTHER:	beige		CL	A B C D RM CTR FL CL						Library Adults Bathroom - 0.2	
48	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		DR	A B C D RM CTR FL CL						Library Storage - 0.3	
49	M PL S C CB PG CR B W V CT G FG OTHER:	green		DF	A B C D RM CTR FL CL							0.2
50	M PL S C CB PG CR B W V CT G FG OTHER:	white		W	A B C D RM CTR FL CL							0.0
51	M PL S C CB PG CR B W V CT G FG OTHER:	white		RC	A B C D RM CTR FL CL							0.3
52	M PL S C CB PG CR B W V CT G FG OTHER:	white		CAB	A B C D RM CTR FL CL							0.0
53	M PL S C CB PG CR B W V CT G FG OTHER:	white		W	A B C D RM CTR FL CL							0.1
54	M PL S C CB PG CR B W V CT G FG OTHER:	white		W	A B C D RM CTR FL CL							0.2
55	M PL S C CB PG CR B W V CT G FG OTHER:	white		W	A B C D RM CTR FL CL							0.1
56	M PL S C CB PG CR B W V CT G FG OTHER:	white		pipe	A B C D RM CTR FL CL							0.0
57	M PL S C CB PG CR B W V CT G FG OTHER:	green		WF	A B C D RM CTR FL CL							0.8
58	M PL S C CB PG CR B W V CT G FG OTHER:	white		CL	A B C D RM CTR FL CL							0.0
59	M PL S C CB PG CR B W V CT G FG OTHER:	white		Access Panel	A B C D RM CTR FL CL							0.0
60	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		DR	A B C D RM CTR FL CL						School Monitors Office - 0.3	
61	M PL S C CB PG CR B W V CT G FG OTHER:	pin		DF	A B C D RM CTR FL CL							0.0
62	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL							0.0
63	M PL S C CB PG CR B W V CT G FG OTHER:	beige		CAB	A B C D RM CTR FL CL							0.1
64	M PL S C CB PG CR B W V CT G FG OTHER:	beige		RC	A B C D RM CTR FL CL							0.0
65	M PL S C CB PG CR B W V CT G FG OTHER:	beige		Pipe Inset	A B C D RM CTR FL CL							0.2
66	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL							0.0





# XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PROJECT NO.: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

CLIENT: Irvington School DistrictPROJECT LOCATION: Dows Ln ElementaryINSPECTOR(S): DR, JBINSPECTION DATE: 02/17/21

PROJ. MANAGER: \_\_\_\_\_

## SPACE CHARACTERISTICS:

## NOTES:

FLOOR #: \_\_\_\_\_ ROOM #: \_\_\_\_\_ ROOM NAME: \_\_\_\_\_

SAMPLE #	SUBSTRATE	COMPONENT DISCRIPTION										RE. [m]
		COLOR	CONDITION [I/F/P]	COMPONENT	WALL/SIDE DESIGN.	SIDE [L/C/R]	HEIGHT [L/M/U]	COMPONENT REPLICANT	QUANTITY (IF POSITIVE) [SF]	PHOTO	NOTES (DETERIORATION TO FRICTION/IMPAC T AND/OR MOISTURE?)	
67	M PL S C CB PG CR B W V CT G FG OTHER:	beige		pipe	A B C D RM CTR FL CL					School Monitors Office	-0.1	
68	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.1	
69	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.1	
70	M PL S C CB PG CR B W V CT G FG OTHER:	beige		CL	A B C D RM CTR FL CL						-0.4	
71	M PL S C CB PG CR B W V CT G FG OTHER:	beige		Access panel	A B C D RM CTR FL CL						-0.1	
72	M PL S C CB PG CR B W V CT G FG OTHER:	varn		DR	A B C D RM CTR FL CL					Library Students Bathing	-0.2	
73	M PL S C CB PG CR B W V CT G FG OTHER:	Green		DF	A B C D RM CTR FL CL						0.1	
74	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						0.0	
75	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL						0.0	
76	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL						-0.1	
77	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL						-0.4	
78	M PL S C CB PG CR B W V CT G FG OTHER:			CL	A B C D RM CTR FL CL						-0.4	
79	M PL S C CB PG CR B W V CT G FG OTHER:	Green		LC	A B C D RM CTR FL CL						-0.1	
80	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL					Library Foyer	-0.1	
81	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL						-0.1	
82	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL						-0.3	
83	M PL S C CB PG CR B W V CT G FG OTHER:	varn		DR	A B C D RM CTR FL CL					Rm G2	0.0	
84	M PL S C CB PG CR B W V CT G FG OTHER:	Green		DF	A B C D RM CTR FL CL						0.0	
85	M PL S C CB PG CR B W V CT G FG OTHER:	beige		SF	A B C D RM CTR FL CL						-0.1	
86	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.1	





# XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PROJECT NO.:

PROJECT NAME:

CLIENT: Irvington School District

PROJECT LOCATION: Jows LN Elementary

INSPECTOR(S): DK, JB

INSPECTION DATE: 2/17/21

PROJ. MANAGER:

## SPACE CHARACTERISTICS:

## NOTES:

FLOOR #: ROOM #: ROOM NAME:

SAMPLE #	SUBSTRATE	COMPONENT DESCRIPTION										NOTES (DETERIORATION TO FRICTION/IMPAC T AND/OR MOISTURE?)	RE: [m]
		COLOR	CONDITION [I/F/P]	COMPONENT	WALL/SIDE DESIGN.	SIDE [L/C/R]	HEIGHT [L/M/U]	COMPONENT REPLICANT	QUANTITY (IF POSITIVE) [SF]	PHOTO			
87	M PL S C CB PG CR B W V CT G FG OTHER:	varn		BB	A B C D RM CTR FL CL			Ru	G2		-0.2		
88	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.2		
89	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.5		
90	M PL S C CB PG CR B W V CT G FG OTHER:	Green		WF	A B C D RM CTR FL CL						-1.0		
91	M PL S C CB PG CR B W V CT G FG OTHER:	varn		CAB	A B C D RM CTR FL CL						0.1		
92	M PL S C CB PG CR B W V CT G FG OTHER:	varn		BB	A B C D RM CTR FL CL						-0.2		
93	M PL S C CB PG CR B W V CT G FG OTHER:	varn		Brd FR	A B C D RM CTR FL CL						-0.2		
94	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.2		
95	M PL S C CB PG CR B W V CT G FG OTHER:	varn		BB	A B C D RM CTR FL CL						-0.2		
96	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL			Halfway	by Ru G2		-0.1		
97	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.2		
98	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.1		
99	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL						-0.5		
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL								
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL								
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL								
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL								
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL								
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL								
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL								





**APPENDIX F:  
PCB BULK SAMPLE FIELD DATA SHEETS WITH CHAIN OF  
CUSTODY & LABORATORY RESULTS  
N/A**





**APPENDIX G:  
COMPANY LICENSE, PERSONAL CERTIFICATIONS AND  
LABORATORY ACCREDITATIONS**



NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2021  
Issued April 01, 2020

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

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

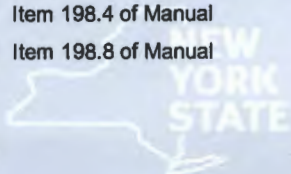
MR. JAMES HALL  
EMSL ANALYTICAL, INC  
307 WEST 38TH STREET  
NEW YORK, NY 10018

NY Lab Id No: 11506

*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 Material	Item 198.8 of Manual



Department  
of Health

Serial No.: 61413

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



United States Department of Commerce  
National Institute of Standards and Technology



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## Certificate of Accreditation to ISO/IEC 17025:2017

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NVLAP LAB CODE: 101048-9

**EMSL Analytical, Inc.**  
New York, NY

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:*

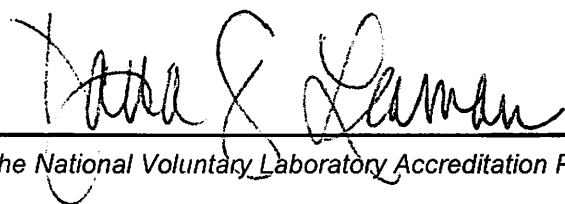
### **Asbestos Fiber Analysis**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

---

2020-07-01 through 2021-06-30

Effective Dates



---

For the National Voluntary Laboratory Accreditation Program



**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017**

**EMSL Analytical, Inc.**

307 W. 38th Street

New York, NY 10018

Mr. Jim Hall

Phone: 212-290-0051 Fax: 212-290-0058

Email: [jhall@emsl.com](mailto:jhall@emsl.com)

<http://www.emsl.com>

**ASBESTOS FIBER ANALYSIS**

**NVLAP LAB CODE 101048-9**

**Bulk Asbestos Analysis**

**Code**

**Description**

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

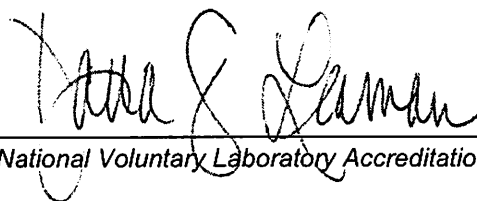
**Airborne Asbestos Analysis**

**Code**

**Description**

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program





01213 005579771 60



Department  
of Labor

JOSUE GARCIA

C/O LOUIS BERGER 96 MORTON ST 8TH FL  
NEW YORK NY 10014

Enclosed is your new card.

## NYS Department of Labor

The Department of Labor is happy to provide this improved card. We welcome your comments:  
[nysdol@labor.ny.gov](mailto:nysdol@labor.ny.gov) or call (518) 457-2735

YOUR NEW CARD





STATE OF NEW YORK - DEPARTMENT OF LABOR  
ASBESTOS CERTIFICATE



**STEPHEN C GRUBER**

CLASS(EXPIRES)

C ATEC(06/21) D INSP(06/21)

H PM (06/21)

CERT# 17-42557

DMV# [REDACTED]

MUST BE CARRIED ON ASBESTOS PROJECTS





# United States Environmental Protection Agency

This is to certify that



Dmitri Kirnossenko

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires January 11, 2022

LBP-R-16279-1

Certification #

December 28, 2018

Issued On



John Gorman, Chief

Pesticides & Toxic Substances Branch





**APPENDIX H:  
SCOPE OF WORK DRAWINGS**

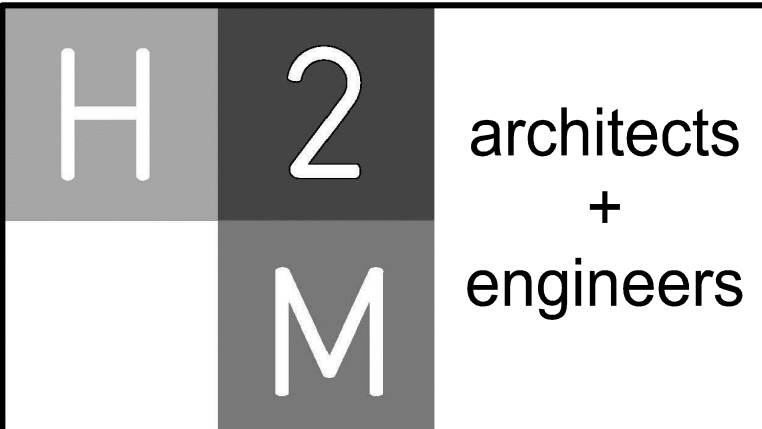


IRVINGTON UNION FREE SCHOOL DISTRICT  
DOWS LANE ELEMENTARY SCHOOL INNOVATION SUITE

6 DOWS LANE, IRVINGTON, NY 10533

SED PROJECT CONTROL NUMBER 66-04-02-02-0-002-021

CONTRACT G - GENERAL CONSTRUCTION, HVAC & ELECTRICAL



2700 Westchester Avenue, Suite 415  
Purchase, NY 10577  
914.358.5623 • www.h2m.com

CONSULTANTS:

MARK	DATE	DESCRIPTION

"ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL IS ILLEGAL."			
DESIGNED BY: BSP	DRAWN BY: BEK	CHECKED BY: BSP	REVIEWED BY: VEB
PROJECT NO: IRSD2003	DATE: JUNE 2020	SCALE:	AS SHOWN

CLIENT  
**Irvington Union Free School District**

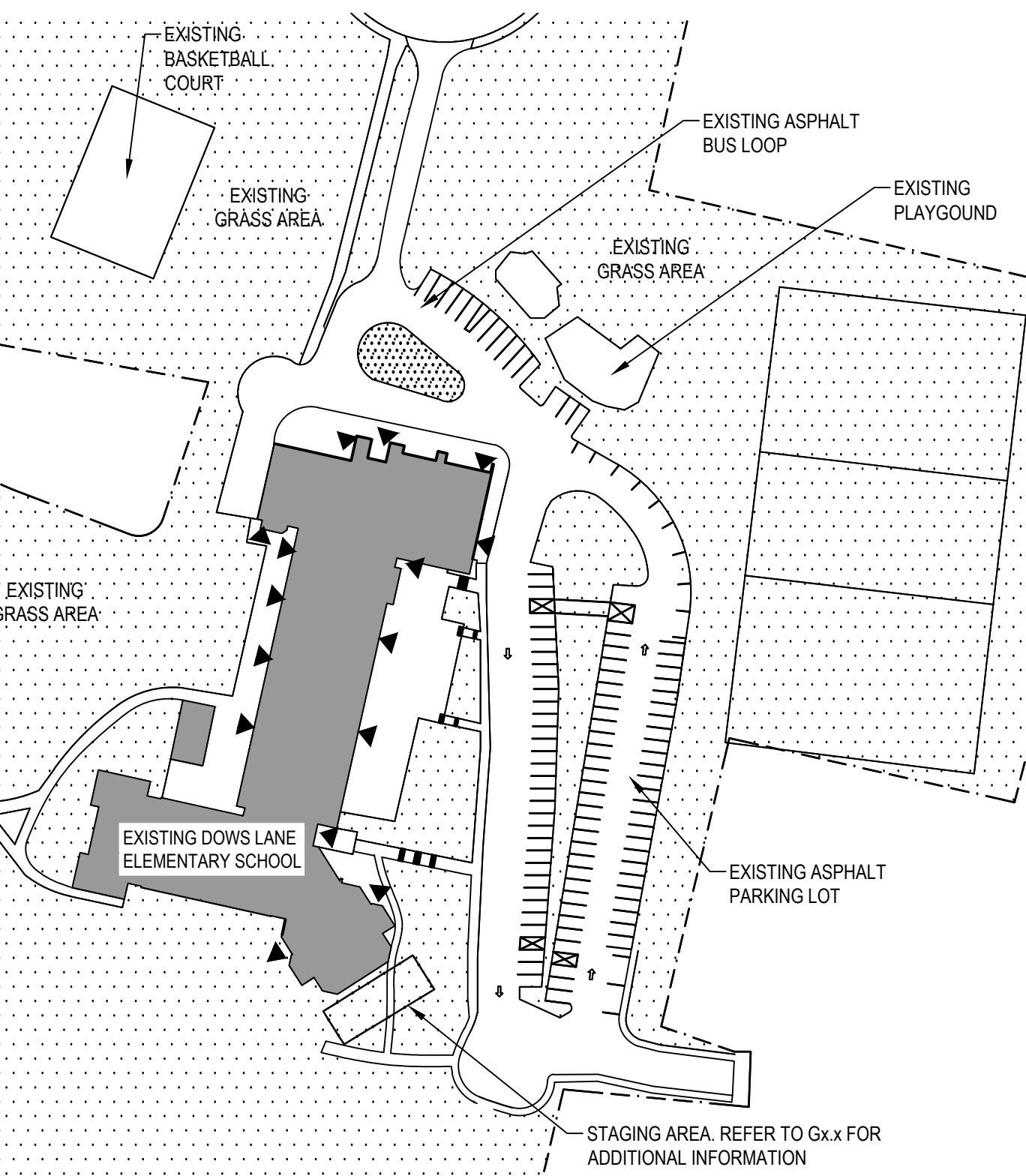

**Dows Lane Elementary School Innovation Suite**



**Dows Lane Elementary School**  
6 Dows Lane  
Irvington, NY 10533

SED Number:66-04-02-02-0-002-021

CONTRACT	<b>ALL CONTRACTS</b>
STATUS	<b>30% SUBMISSION</b>
SHEET TITLE	<b>GENERAL NOTES, ABBREVIATIONS, DRAWING LIST, STAGING PLAN, LOCATION MAP AND LEGEND</b>
DRAWING No.	<b>G0.0</b>

ABBREVIATIONS		GENERAL NOTES		DRAWING LIST		STAGING PLAN		STAGING NOTES			
AB	ANCHOR BOLT	FAI	FRESH AIR INTAKE	1.	ALL WORK SHALL COMPLY WITHIN THE 2015 INTERNATIONAL BUILDING CODE AND THE 2017 NEW YORK STATE UNIFORM CODE SUPPLEMENT AS WELL AS THE NEW YORK STATE EDUCATION DEPARTMENT MANUAL OF PLANNING STANDARDS.	<b>INFORMATIONAL DRAWINGS</b> G0.0 GENERAL NOTES, ABBREVIATIONS, DRAWING LIST, STAGING PLAN, LOCATION MAP AND LEGEND G1.0 EXISTING BASEMENT LIFE SAFETY PLAN G1.1 EXISTING FIRST FLOOR LIFE SAFETY PLAN G1.2 EXISTING SECOND FLOOR LIFE SAFETY PLAN				1.	POST SIGNS INDICATING CONSTRUCTION AREA AND CONSTRUCTION EMPLOYEE ENTRANCE.
A/C	AIR CONDITIONING	F.C.	FIRE CODE	2.	ALL NOTES APPEARING HEREIN, WITH THOSE ON VARIOUS DRAWINGS SHALL APPLY TO ALL DRAWINGS AND FORM PART OF THE CONTRACT DOCUMENTS.	<b>ARCHITECTURAL DRAWINGS</b> D1.0 PARTIAL FIRST FLOOR DEMOLITION PLAN A1.0 PARTIAL FIRST FLOOR PLAN A1.1 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN A6.0 FINISH SCHEDULE A7.0 DOOR SCHEDULE AND DETAILS				2.	CONSTRUCTION FENCE TO BE 8'-0" HIGH CHAIN LINK FENCE LOCATED A MINIMUM OF 15'-0" FROM ALL WINDOW OPENINGS. ALL GATES ARE TO BE LOCKED AT ALL TIMES, EXCEPT FOR WHEN A WORKER IS IN ATTENDANCE TO PREVENT UNAUTHORIZED ENTRY.
ACI	AMERICAN CONCRETE INSTITUTE	FD	FLOOR DRAIN	3.	IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL DIMENSIONS, SQUARE FOOTAGES, LOCATIONS AND QUANTITIES OF ALL ITEMS AND/OR SPACES WHETHER INDICATED IN THE DRAWINGS OR NOT.	<b>HVAC DRAWINGS</b> HX-X XXX		<b>SYMBOLS</b> ▲ STAFF ENTRANCE / EGRESS ▲ ENTRANCE/EGRESS AFFECTED BY CONSTRUCTION ACTIVITY. TEMPORARY EGRESS TO BE MAINTAINED		3.	CONTRACTOR IS TO STAGE ON THE SITE IN SUCH A MANNER AS TO NOT BLOCK OR ENCROACH UPON EXISTING EXITS/ENTRANCES TO BUILDING, AND VEHICLE ACCESS.
ACST	ACOUSTIC	FIN	FINISH	4.	DO NOT SCALE MEASURE ANY DRAWING. VERIFY THE FIGURES, DIMENSIONS AND DESIGN INTENTION SHOWN ON THE DRAWINGS BEFORE BEGINNING LAYOUT OF THE WORK AND REPORT ANY ERRORS, INACCURACIES, OR CONFLICTS TO THE ARCHITECT/ENGINEER IN WRITING BEFORE BEGINNING ANY WORK.	<b>ELECTRICAL DRAWINGS</b> EX-X XXX					
ACT	ACOUSTICAL CEILING TILE	FR	FIRE RETARDANT	5.	ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, LAWS AND STATUTES AS REQUIRED. STRICTLY ADHERE TO MANUFACTURER'S PRINTED INSTRUCTIONS.	<b>PLUMBING DRAWINGS</b> PX-X XXX					
ACU	AIR CONDITIONING UNIT	FTG	FOOTING	6.	VERIFY EXACT LAYOUT COMPATIBILITY WITH ALL EXISTING CONDITIONS BEFORE BEGINNING WORK.						
AD	ACCESS DOOR ADJUSTABLE	GA	GAUGE	7.	DISTURB ONLY THOSE AREAS OF THE SITE AFFECTED BY RENOVATION, UNLESS NOTED OTHERWISE. PROTECT ALL OTHER AREAS. CONTRACTORS SHALL BE RESPONSIBLE FOR ALL PATCH AND REPAIR OF EXISTING FINISHES WHICH ARE DAMAGED DURING CONSTRUCTION.						
ADJ	A/E ARCHITECT/ENGINEER	GWB	GYP SUM WALL BOARD	8.	EACH CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF ANSI AND PROVIDE WHERE APPLICABLE ADA COMPLIANT BUILDING COMPONENTS.						
AFF	ABOVE FINISH FLOOR	GYP	GYP SUM	9.	THE OWNER RESERVES THE RIGHT AT ALL TIMES TO DELIVER, PLACE AND INSTALL EQUIPMENT AND FURNISHINGS AS THE WORK PROGRESSES SO LONG AS THERE IS NOT A CONFLICT WITH THE CONTRACTORS.						
ALUM	ALUMINUM	GYP. BD.	GYP SUM BOARD	10.	THE CONTRACTOR SHALL MAINTAIN AT THE SITE ONE RECORD COPY OF ALL DRAWINGS, SPECIFICATIONS AND APPROVED SHOP DRAWINGS AND APPROVED SAMPLES MARKED CURRENTLY TO RECORD ALL CHANGES DURING CONSTRUCTION.						
ANCH	ANCHOR ANSI AMERICAN NATIONAL STANDARDS INSTITUTE	HC	HANDICAPPED	11.	ANY CHANGES TO THE SCOPE OF WORK OR IN THE CONSTRUCTION DETAILS, WHETHER DUE TO FIELD CONDITIONS OR OMISSION SHALL BE DOCUMENTED BY THE ARCHITECT PRIOR TO EXECUTION. ANY INCREASE OR DECREASE IN THE CONTRACT PRICE MUST BE APPROVED IN WRITING PRIOR TO EXECUTION.						
		HMI	HOLLOW METAL	12.	THE CONTRACTOR BY PRESENTING THEIR BID FOR THE WORK, REPRESENTS THAT HE/SHE HAS INSPECTED THE SITE AND IS COMPLETELY FAMILIAR WITH THE SCOPE OF WORK AND ALL FIELD CONDITIONS RELATED TO, AND AFFECTING THE WORK AND ITS PERFORMANCE. EXCEPTIONS AFFECTING THE WORK AND ITS PERFORMANCE, OR CONFLICTS BETWEEN FIELD CONDITIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE SUBMISSION OF BIDS. FAILURE TO DO SO WILL NOT RESULT IN A CHANGE TO THE CONTRACT PRICE IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE ALL NECESSARY ACCOMMODATIONS TO COMPLETE THE SCOPE OF WORK.						
APA	ACCESS PANEL	HOR	HORIZONTAL	13.	SCOPE OF WORK: CONTRACT G: RENOVATION OF TWO EXISTING VESTIBULES WITH NEW STORE FRONT, FLOORING, CEILINGS, LIGHTING, DATA, POWER REQUIREMENTS WORK, HEAT AND ALL OTHER ASSOCIATED WORK, ROOF REPLACEMENT, GYM FLOOR REPLACEMENT, ADDITION OF AC TO GYM AREA WITH NEW UNIT ON EXISTING ROOF REQUIRING DUNNAGE AND ALL ASSOCIATED WORK AND ASBESTOS ABATEMENT. CONTRACT C: ENTRANCE PAD REPLACEMENT, RESURFACING OF EXISTING PARKING LOT & BASKETBALL COURT AND ALL ASSOCIATED WORK.						
APPROX	APPROXIMATELY	HW	HOT WATER								
ASPH	ASPHALT	INSUL	INSULATION/INSULATING								
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	INT	INTERIOR								
		LAV	LAVATORY								
		LDR	LEADER								
		LT	LIGHT								
AWS	AMERICAN WELDING SOCIETY	LT	LIGHT								
B	FIRE BLANKET	MAX	MAXIMUM								
BAL	BALANCE	MECH	MECHANICAL								
BB	BULLETIN BOARD	MISC	MISCELLANEOUS								
BD	BOARD	MO	MASONRY OPENING								
BLDG	BUILDING	MR	MOISTURE RESISTANT								
BLK	BLOCK	NIC	NOT IN CONTRACT								
BLKG	BLOCKING	NTS	NOT TO SCALE								
BM	BEAM	OC	ON CENTER								
B.O.	BOTTOM OF	OD	OUTSIDE DIAMETER								
BOL	BOTTOM OF LINTEL	PLYWD	PLYWOOD								
BOT	BOTTOM	PSF	POUNDS PER SQUARE FOOT								
CEL	CEILING	PSI	POUNDS PER SQUARE INCH								
CEM	CEMENT	PTD	PAINTED								
CER	CERAMIC	PVC	POLYVINYL CHLORIDE								
CLO	CLOSET	R	RADIUS OR RISER								
CMU	CONCRETE MASONRY UNIT	RCP	REFLECTED CEILING PLAN								
COL	COLUMN	RD	ROOF DRAIN								
CONC	CONCRETE	REINF	REINFORCED								
CONST	CONSTRUCTION	RM	ROOM								
CONT	CONTINUOUS	RO	ROUGH OPENING								
CORR	CORRIDOR	SIM	SIMILAR								
CPT	CARPET	SPEC	SPECIFICATIONS								
DS	DOWNSPOUT	SS	SQUARE								
DW	DISHWASHER	SO	STAINLESS STEEL								
DWG	DRAWING	STL	STEEL								
EA	EACH	TEMP	TEMPERATURE								
EL	ELEVATION	TER	TERRAZZO								
ELEC	ELECTRIC/ELECTRICAL	THK	THICK								
ELEV	ELEVATOR	TYP	TYPICAL								
EP	ELECTRICAL PANEL	UTL	UTILITY								
EPY	EPOXY COATING	VB	VAPOR BARRIER								
EQ	EQUAL	VCT	VINYL COMPOSITION TILE								
EQUIP	EQUIPMENT	VERT	VERTICAL								
EXIST	EXISTING	VTR	VENT THRU ROOF								
EXST	EXHAUST	WC	WATER CLOSET								
		WH	WATER HEATER								
		WWF	WELDED WIRE FABRIC								

**LOCATION MAP**

**PROJECT SITE**

**SYMBOLS LEGEND**

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
ROOM DESIGNATION		GYP SUM	
SECTION MARK		CONCRETE	
DETAIL SYMBOL		AGGREGATE SUB-BASE	
ELEVATION KEY		EARTH	
INTERIOR ELEVATION REFERENCE		BATT INSULATION	
ELEVATION LINE		PLYWOOD	
REVISION		RIGID INSULATION	
PARTITION TYPE		STEEL	
		WOOD	
		WOOD BLOCKING	

**UNIFORM SAFETY STANDARDS - FOR SCHOOL CONSTRUCTION AND MAINTENANCE PROJECTS (NYSED 155.5 REGULATION)**

1. "THE OCCUPIED PORTION OF ANY SCHOOL BUILDING SHALL ALWAYS COMPLY WITH THE MINIMUM REQUIREMENTS NECESSARY TO MAINTAIN A CERTIFICATE OF OCCUPANCY."

2. SCHOOL AREAS TO BE DISTURBED DURING RENOVATION OR DEMOLITION ACTIVITIES HAVE BEEN TESTED AND FOUND TO CONTAIN ASBESTOS. THESE AREAS WILL BE ABATED IN ACCORDANCE WITH THE SPECIFICATION INCLUDED IN THE ENVIRONMENTAL REPORT IN THE APPENDIX. A COPY OF THESE TEST RESULTS IS INCLUDED WITHIN THE ENVIRONMENTAL REPORT FOUND IN THE APPENDIX OF THE PROJECT MANUAL FOR THIS PROJECT.

3. "GENERAL SAFETY AND SECURITY STANDARDS FOR CONSTRUCTION PROJECTS:  
(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."

4. "SEPARATION OF CONSTRUCTION AREAS FROM OCCUPIED SPACES: 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 DIRECTLY FROM THE BUILDING EXTERIOR.  
(1) A SPECIFIC STAIRWELL AND/OR ELEVATOR SHALL BE ASSIGNED OR CONSTRUCTION WORKER USE DURING WORK HOURS. IN GENERAL, WORKERS MAY NOT USE CORRIDORS, STAIRS OR ELEVATORS DESIGNATED FOR STUDENTS OR SCHOOL STAFF. WHERE NO STAIRWELL AND OR ELEVATOR IS ASSIGNED, WORKERS MUST ENTER THE CONSTRUCTION SPACES DIRECTLY FROM THE BUILDING EXTERIOR.  
(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."

5. A PLAN DETAILING HOW EXITING REQUIRED BY THE APPLICABLE BUILDING CODE WILL BE MAINTAINED.

6. WORK UNDER THIS CONTRACT WILL BE CONDUCTED DURING THE SUMMER RECESS WHEN THE BUILDING IS UNOCCUPIED. IF THE BUILDING BECOMES OCCUPIED THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN ALL EXISTING MEANS OF EGRESS IN A CLEAR AND FREE MANNER, INCLUDING THE STORAGE OF MATERIALS AND STAGING OF EQUIPMENT ON THE SITE. IF ANY PORTION OF THE BUILDING DOES BECOME OCCUPIED THE ARCHITECT WILL PROVIDE A DETAILED PLAN FOR EXITING, OVERHEAD PROTECTION AND EGRESS IN ACCORDANCE WITH APPLICABLE BUILDING CODES.

7. A PLAN DETAILING HOW ADEQUATE VENTILATION WILL BE MAINTAINED DURING CONSTRUCTION.

8. WORK UNDER THIS PROJECT WILL BE COMPLETED DURING THE SUMMER RECESS WHEN THE BUILDING WILL NOT BE OCCUPIED BY FACULTY, STAFF OR STUDENTS. IF A PORTION OF THE BUILDING IS TO BECOME OCCUPIED DURING THE CONSTRUCTION PROCESS THE CONTRACTOR SHALL CLOSE OFF ALL INTAKES, OPENINGS, AND MECHANICAL VENTILATION SYSTEMS ADJACENT TO THE WORK AREA. THE ARCHITECT SHALL ASSIST THE CONTRACTOR IN DEVELOPING A PLAN TO PROVIDE ALTERNATE MEANS OF FRESH AIR TO ALL OCCUPIED SPACES.  
"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."  
"THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF CHEMICAL FUMES, GASES, AND OTHER CONTAMINANTS PRODUCED BY WELDING, GASOLINE OR DIESEL ENGINES, ROOFING, PAVING, PAINTING, ETC. TO ENSURE THEY DO NOT ENTER OCCUPIED PORTIONS OF THE BUILDING OR AIR INTAKES." ALL VENTS SHALL BE SEALED TO PREVENT CONTAMINANTS FROM THE CONSTRUCTION AREA FROM ENTERING THE OCCUPIED AREAS OF THE BUILDING.

9. "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."

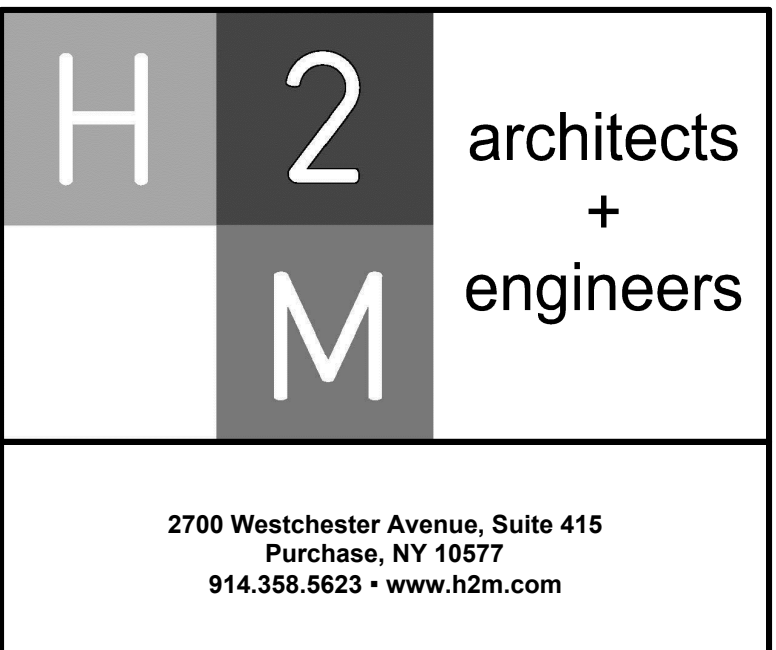
10. "LARGE AND SMALL ASBESTOS ABATEMENT PROJECTS AS DEFINED BY 12NYCRR56 SHALL NOT BE PERFORMED WHILE THE BUILDING IS OCCUPIED." IT IS OUR INTERPRETATION THAT THE TERM "BUILDING", AS REFERENCED IN THIS SECTION, MEANS A WING OR MAJOR SECTION OF A BUILDING THAT CAN BE COMPLETELY ISOLATED FROM THE REST OF THE BUILDING WITH SEALED NON COMBUSTIBLE 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.

11. 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.  
MINOR ASBESTOS PROJECTS DEFINED BY 12NYCRR56 AS AN ASBESTOS PROJECT INVOLVING THE REMOVAL, DISTURBANCE, REPAIR, ENCAPSULATION, ENCLOSURE OR HANDLING OF 10 SQUARE FEET OF ASBESTOS OR ASBESTOS MATERIAL MAY BE PERFORMED IN UNOCCUPIED AREAS OF AN OCCUPIED BUILDING IN ACCORDANCE WITH 12NYCRR56.

12. THIS PROJECT HAVE BEEN TESTED FOR LEAD CONTENT IN ACCORDANCE WITH USEPA REGULATIONS AND PER HUD GUIDELINES. ALL MATERIALS THAT TESTED POSITIVE WHICH ARE TO BE DISTURBED UNDER THE PROJECT ARE SCHEDULED FOR REMOVAL UNDER THE SPECIFICATION INCLUDED IN THE ENVIRONMENTAL REPORT IN THE APPENDIX. TRACES OF LEAD WERE ALSO DETECTED IN OTHER MATERIALS. THEREFORE THE CONTRACTOR SHALL TAKE THE PROPER MEASURES TO PROTECT AND TRAIN WORKERS PER OSHA REGULATIONS. ALL TESTING RESULTS ARE INCLUDED IN THE ENVIRONMENTAL REPORT IN THE APPENDIX.  
UNDER NEW YORK STATE LAW SMOKING IS PROHIBITED ON SCHOOL GROUNDS. EMPLOYEES FOUND TO BE SMOKING ON SCHOOL GROUNDS SHALL BE ORDERED OFF SITE AND A SECOND OFFENSE WILL BE GROUNDS FOR PERMANENT REMOVAL FROM PROJECT. LEGAL PENALTIES MAY ALSO BE APPLIED.  
ALL CONTRACTORS SHALL TAKE EVERY PRECAUTION AND SHALL PROVIDE SUCH EQUIPMENT AND FACILITIES AS ARE NECESSARY OR REQUIRED FOR THE SAFETY OF ITS EMPLOYEES. IN CASE OF AN ACCIDENT, FIRST AID SHALL BE ADMINISTERED TO ANY WHO MAY BE INJURED IN THE PROGRESS OF THE WORK. IN ADDITION, THE CONTRACTOR SHALL BE PREPARED FOR THE REMOVAL TO THE HOSPITAL FOR TREATMENT OF ANY EMPLOYEE EITHER SERIOUSLY INJURED OR ILL.  
THE CONTRACTOR FOR GENERAL CONSTRUCTION SHALL PROVIDE TEMPORARY WEATHER-TIGHT AND INSULATED ENCLOSURES AS MAY BE REQUIRED BY THE SCOPE OF WORK FOR ALL EXTERIOR OPENINGS SO AS TO PROTECT ALL WORK FROM THE WEATHER, AND TO PROVIDE SECURITY AGAINST UNAUTHORIZED ENTRY. ENCLOSURES SHALL NOT CREATE DEAD END CONDITIONS. REQUIRED EXITS SHALL BE MAINTAINED FREE AND CLEAR.

NYSED (Irvington) 05/31/RS2 2003 (Dows Lane Elementary School Renovation) 02 00M-CAD (General Notes, Abbreviations, Drawing Plan, Staging Plan, Location Map and Legend) 04 Jul 14, 2020 - 1:10pm (Printed on Jul 14, 2020 - 1:22pm) By: h2marchitects





CONSULTANTS:

[illegible]

**"ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL IS ILLEGAL"**

DESIGNED BY: BSP	DRAWN BY: BEK	CHECKED BY: BSP	REVIEWED BY: VEB
PROJECT No.: IRSD2003	DATE: JUNE 2020	SCALE: AS SHOWN	

**CLIENT**

**Irvington Union Free  
School District**

**Dows Lane Elementary  
School Innovation Suite**



**Dows Lane Elementary School**  
**6 Dows Lane**  
**Irvington, NY 10533**

**SED Number:66-04-02-02-0-002-021**

CONTRACT

**CONTRACT G**  
**GENERAL CONSTRUCTION, HVAC,**  
**ELECTRICAL AND**  
**PLUMBING**



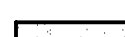







STATUS **30% SUBMISSION**

SHEET TITLE

**PARTIAL BASEMENT DEMOLITION  
PLAN**

DRAWING No. **D1.0**

**DEMOLITION LEGEND:** (NOT ALL NOTES USED ON EACH SHEET)

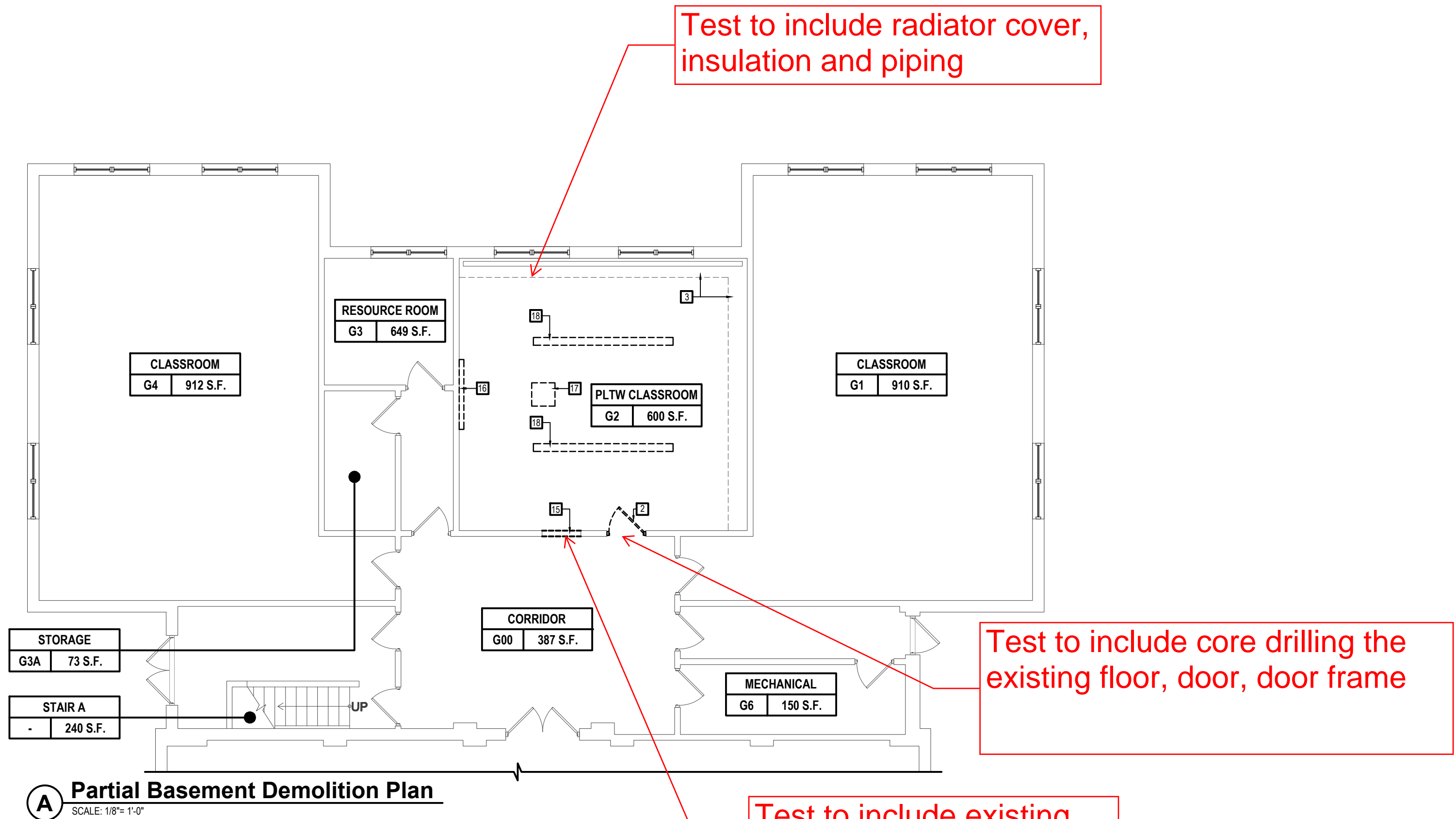
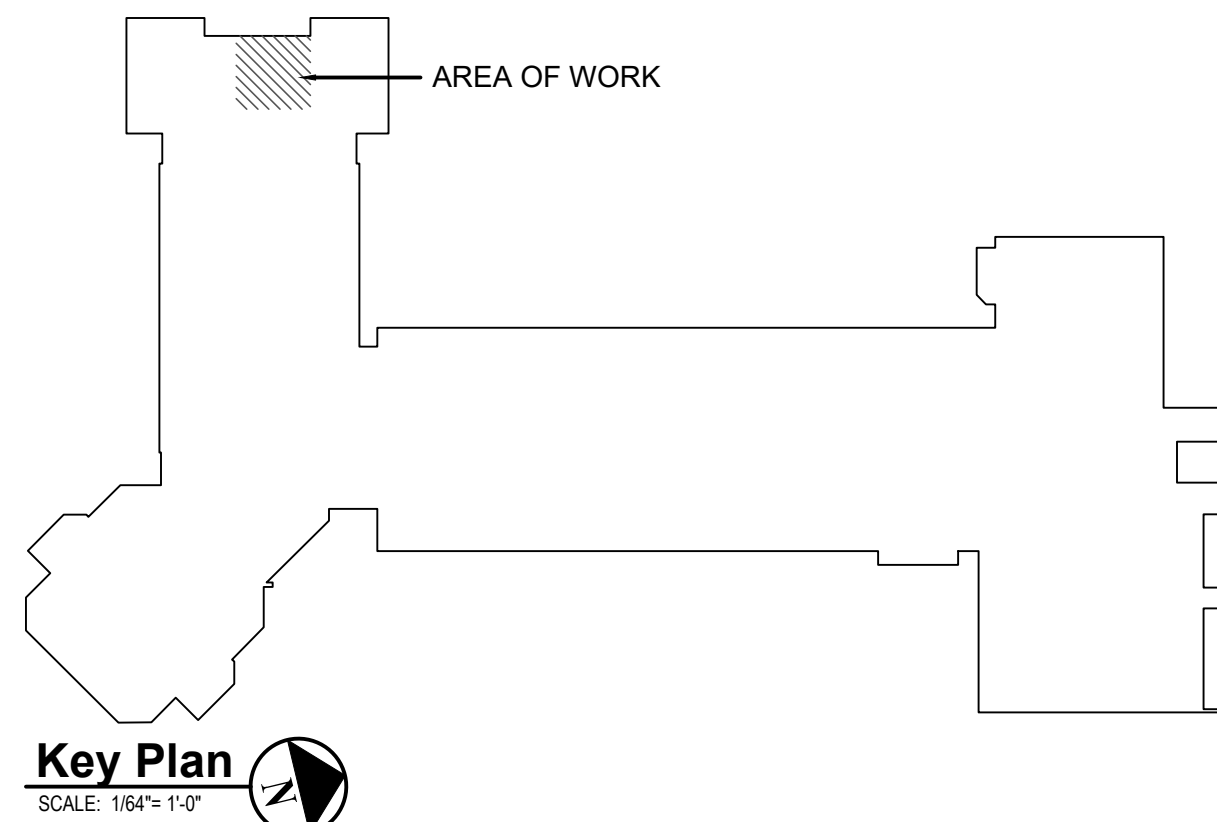
ROOM		ROOM NUMBER DESIGNATION TAG		VCT FLOORING TO BE REMOVED
000	± S.F.			
	DEMO KEY NOTE - SEE DRAWINGS D1.0 FOR DEMO KEY NOTES			CARPET FLOORING TO BE REMOVED
	EXISTING DOOR TO REMAIN			EXISTING WINDOW TO REMAIN
	EXISTING DOOR TO BE REMOVED AND LEGALLY DISPOSED OF			EXISTING WINDOW TO BE REMOVED AND LEGALLY DISPOSED OF
	EXISTING WALL TO REMAIN			EXISTING ABOVE TO REMAIN, U.O.N.
	EXISTING WALL TO BE REMOVED			

**DEMO KEY NOTES** (NOT ALL NOTES USED ON EACH SHEET)

- 1 CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MOVABLE PARTITION WALL, CEILING AND FLOOR TRACKS, AND HARDWARE. REMOVAL SHALL INCLUDE BUT NOT BE LIMITED TO ALL DEVICES USED TO SECURE MOVABLE PARTITION IN PLACE.
- 2 CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING DOOR, FRAME, SADDLE AND HARDWARE. REMOVAL SHALL INCLUDE BUT NOT BE LIMITED TO ALL DEVICES USED TO SECURE DOOR AND FRAME IN PLACE.
- 3 CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING CASEWORK. REMOVAL SHALL INCLUDE BUT NOT BE LIMITED TO CASEWORK, BLOCKING AND ALL ASSOCIATED CONSTRUCTION USED TO SECURE CASEWORK IN PLACE. REFER TO DEMOLITION PLUMBING NOTES FOR REMOVAL OF ALL ASSOCIATED PIPES AND FIXTURES. PREPARE EXISTING FLOOR SURFACE TO RECEIVE NEW CONSTRUCTION.
- 4 CONTRACTOR SHALL REMOVE EXISTING SINK AND ASSOCIATED FIXTURES. EXISTING PLUMBING TO BE MODIFIED AND PREPARED AS REQUIRED FOR NEW SINK.
- 5 CONTRACTOR SHALL REMOVE EXISTING SINK. REFER TO DEMOLITION PLUMBING NOTES FOR REMOVAL OF ALL ASSOCIATED PIPES AND FIXTURES.
- 6 CONTRACTOR SHALL REMOVE EXISTING CMU WALL.
- 7 CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING VCT FLOORING, INCLUDING BUT NOT LIMITED TO COVE BASE AND ALL ADHESIVES, FASTENERS AND UNDERLAYMENT USED TO SECURE THE FLOORING AND COVE BASE IN PLACE. PREP SUBFLOOR AS PER MANUFACTURERS RECOMMENDATIONS FOR INSTALLATION OF NEW FLOORING.
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- 12 CONTRACTOR SHALL REMOVE CEILING MOUNTED PROJECTORS AND RETURN TO DISTRICT.
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- 14 SAW CUT EXISTING CONCRETE SLAB FOR NEW SINK. REFER TO NOTE #11 ON SHEET A1.0 AND PLUMBING DRAWINGS.
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- 18 CONTRACTOR SHALL REMOVE EXISTING LINEAR PENDANT LIGHTS AND RETURN TO DISTRICT.

## GENERAL DEMOLITION WORK NOTES

1. ALL DEMOLITION WORK SHALL BE IN COMPLIANCE WITH ALL FEDERAL AND NEW YORK STATE APPLICABLE BUILDING AND LIFE AND SAFETY CODES AND REGULATIONS.
2. COORDINATE THE WORK OF THE DEMOLITION DRAWINGS WITH ALL CONSTRUCTION DRAWINGS AND DOCUMENTS.
3. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND QUANTITIES OF ALL ITEMS TO BE REMOVED PRIOR TO START OF WORK.
4. THE GENERAL WORK CONTRACTOR SHALL PROTECT ALL PORTIONS OF THE EXISTING BUILDING WHERE NEW WORK IS TO BE DONE FROM DUST, WEATHER INTERFERENCE AND FREEZING. PROVIDE DUST FREE BARRIER PARTITIONS DURING DEMOLITION TO PREVENT DEBRIS FROM ENTERING STUDENT AND FACULTY OCCUPIED AREAS. THE GENERAL WORK CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING STRUCTURE OR BUILDING CONTENTS.
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9. CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING DOORS AND FRAMES TO REMAIN, AS REQUIRED THROUGHOUT COURSE OF WORK, INCLUDING ALL RELATED HARDWARE AND ACCESSORIES.
10. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING WALL-MOUNTED ITEMS INCLUDING BUT NOT LIMITED TO FIRE ALARM SYSTEM DEVICES, LIGHTING CONTROLS AND HVAC CONTROLS, UNLESS OTHERWISE NOTED.
11. CONTRACTOR SHALL BE RESPONSIBLE TO WIPE DOWN AND CLEAN ALL ROOMS WHERE WORK IS BEING DONE UPON COMPLETION OF THE PROJECT.
12. THE USE OF OPEN CHUTES SHALL NOT BE PERMITTED.
13. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE PARKING LOT PAVING, CONCRETE SIDEWALKS, LANDSCAPING, GRASS AREAS AND EXTERIOR FINISHES. ANY DAMAGED AREAS SHALL BE RESTORED TO EXISTING CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE DISTRICT.
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16. CONTRACTOR SHALL REPAIR ALL GLASS TO RECEIVE SECURITY FILM. SEE NEW WORK SHEETS FOR ADDITIONAL INFORMATION.



Items to be tested for asbestos, PCB's and lead. Testing area to include but not limited to any surface and all floor, ceiling and wall assemblies that are affected or penetrated by new piping, conduit or equipment. Items to include but not limited to pipes, connections, insulation, paint, caulk, sealants, grout, mortar and flashing



CONSULTANTS:		

MARK	DATE	DESCRIPTION

"REPRODUCTION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL IS ILLEGAL."			
DESIGNED BY: BSP	DRAWN BY: BEK	CHECKED BY: BSP	REVIEWED BY: VEB
PROJECT No.: IRSD2003	DATE: JUNE 2020	SCALE: AS SHOWN	

CLIENT

**Irvington Union Free School District**

**Dows Lane Elementary School Innovation Suite**



**Dows Lane Elementary School**  
6 Dows Lane  
Irvington, NY 10533

**SED Number:66-04-02-02-0-002-021**

CONTRACT

**CONTRACT G  
GENERAL CONSTRUCTION, HVAC,  
ELECTRICAL AND  
PLUMBING**

STATUS

**30% SUBMISSION**

SHEET TITLE

**PARTIAL FIRST FLOOR  
DEMOLITION PLAN**

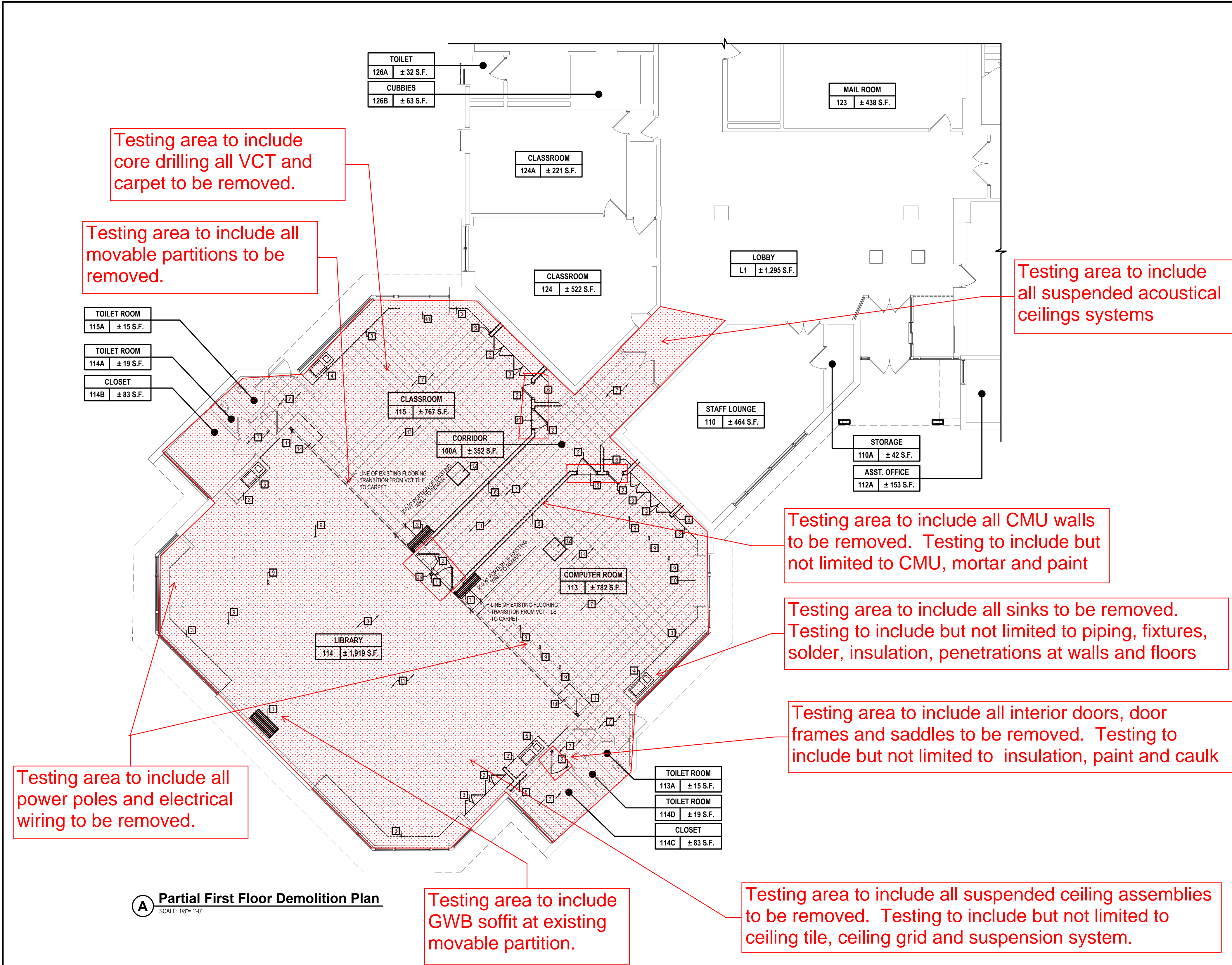
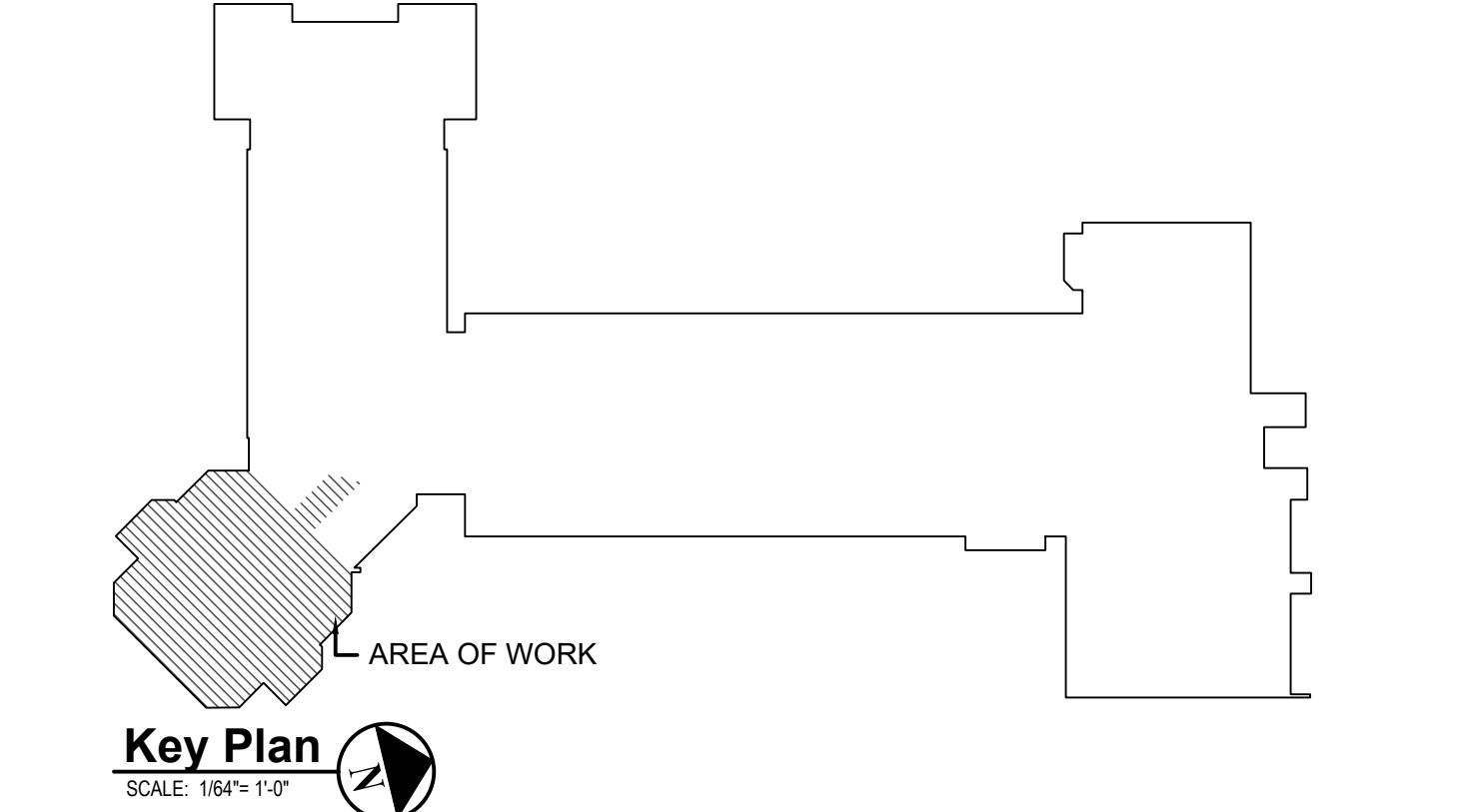
DRAWING No.

**D1.1**

DEMOLITION LEGEND: (NOT ALL NOTES USED ON EACH SHEET)			
ROOM 000 ± S.F.	ROOM NUMBER DESIGNATION TAG		VCT FLOORING TO BE REMOVED
	DEMO KEY NOTE - SEE DRAWINGS D1.0 FOR DEMO KEY NOTES		CARPET FLOORING TO BE REMOVED
	EXISTING DOOR TO REMAIN		EXISTING WINDOW TO REMAIN
	EXISTING DOOR TO BE REMOVED AND LEGALLY DISPOSED OF		EXISTING WINDOW TO BE REMOVED AND LEGALLY DISPOSED OF
	EXISTING WALL TO REMAIN		EXISTING ABOVE TO REMAIN, U.O.N.
	EXISTING WALL TO BE REMOVED		

DEMO KEY NOTES (NOT ALL NOTES USED ON EACH SHEET)	
1	CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MOVABLE PARTITION WALL, CEILING AND FLOOR TRACKS, AND HARDWARE. REMOVAL SHALL INCLUDE BUT NOT BE LIMITED TO ALL DEVICES USED TO SECURE MOVABLE PARTITION IN PLACE.
2	CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING DOOR, FRAME, SADDLE AND HARDWARE. REMOVAL SHALL INCLUDE BUT NOT BE LIMITED TO ALL DEVICES USED TO SECURE DOOR AND FRAME IN PLACE.
3	CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING CASEWORK. REMOVAL SHALL INCLUDE BUT NOT BE LIMITED TO CASEWORK, BLOCKING AND ALL ASSOCIATED CONSTRUCTION USED TO SECURE CASEWORK IN PLACE. REFER TO DEMOLITION PLUMBING NOTES FOR REMOVAL OF ALL ASSOCIATED PIPES AND FIXTURES. PREPARE EXISTING FLOOR SURFACE TO RECEIVE NEW CONSTRUCTION.
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**Partial First Floor Demolition Plan**  
SCALE: 1/8"= 1'-0"





**APPENDIX I:  
PHOTOGRAPHIC DOCUMENTATION**





## Final Report For Environmental Inspection Services

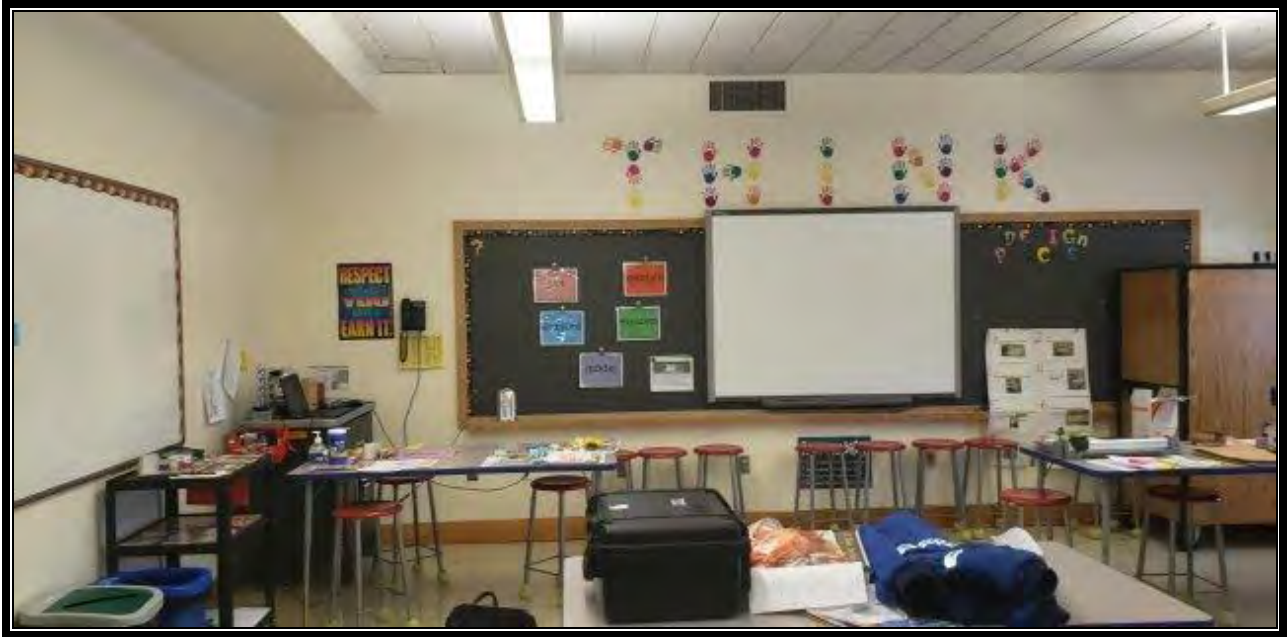


Photo 1: Non-ACM Gypsum Board (Gray), Joint Compound (White) and 2'x4' Square Design Ceiling Tile (White)



Photo 2: Non-ACM 12"x12" Floor Tile (Beige) and Associated Mastic (Black)





Photo 3: Non-ACM 1'x1' Spline Ceiling Tile (White)



Photo 4: Non-ACM Spray-on Fireproofing (Gray)





Photo 5: Non-ACM Ceiling Plaster (White & Brown Coats)



Photo 6: Non-ACM 2'x4' Ceiling Tiles and Soffit Plaster (White & Brown Coats)





Photo 7: ACM Ceramic Wall Tile Backing (Beige) and Non-ACM Ceramic Wall Tile Grout (White)



Photo 8: ACM Sink Undercoating (Black)





Photo 9: ACM Mastic Associated 12"x12" Tan Y Brown Floor Tiles (Black), Contaminated 12"x12" Floor Tiles (Tan & Brown) and Non-ACM 4" Cove Base Molding (Light Brown) and Associated Mastic (Brown)



Photo 10: Non-ACM Mastic Associated with Carpet (Black), CMU Mortar, 4" Cove Base Molding (Black) and Associated Mastic (Brown)





Photo 11: Non-ACM 12"x12" Red Marble Floor Tile, 12"x12" Beige Marble Floor Tile and Ceramic Wall Tile Backing



Photo 12: Non-ACM and Tectum Ceiling (Tan/Gray)



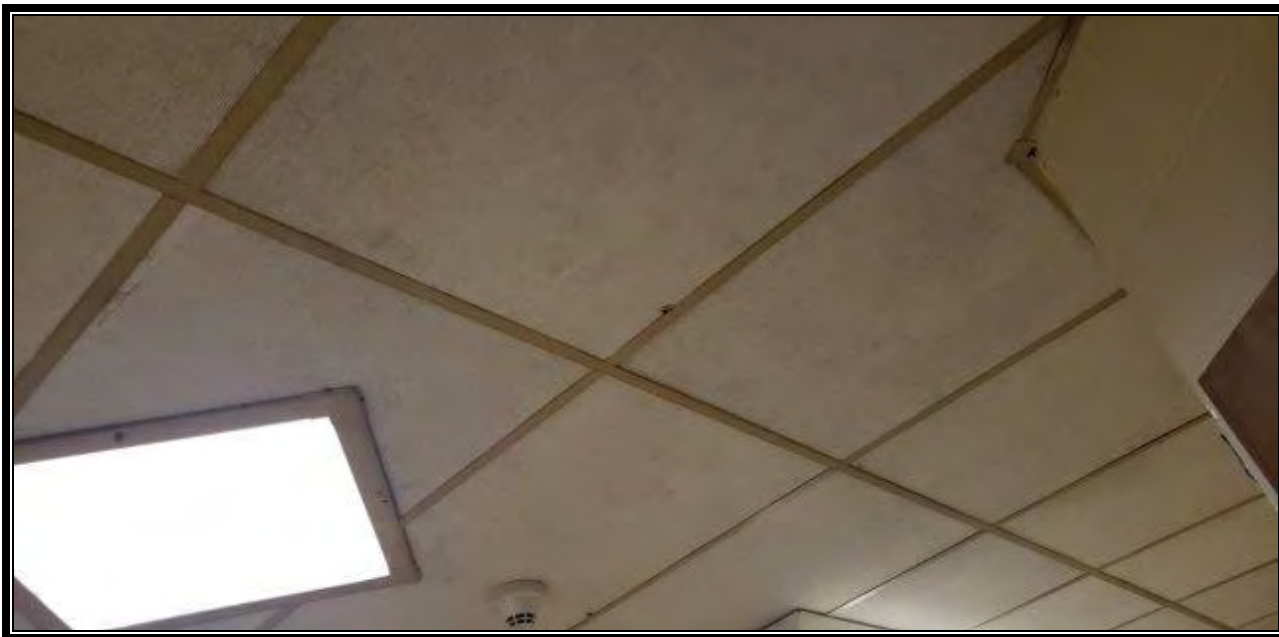


Photo 13: 2'x4' Fiberglass Ceiling Tiles



Photo 14: Vinyl Electrical Wire Insulation





Photo 15: Wood Doors



Photo 16: Fiberglass Pipe Insulation





**APPENDIX J:  
FILE SEARCH**



# **FINAL REPORT OF ENVIRONMENTAL SERVICES**

*Performed at:*

**DOWS LANE ELEMENTARY SCHOOL  
6 DOWS LANE  
IRVINGTON, NY 10533**

*Prepared for:*



**IRVINGTON**  
UNION FREE SCHOOL DISTRICT

**Irvington Union Free School District  
6 Dows Lane  
Irvington, NY 10533**

*Prepared by:*



**565 Taxter Road, 5<sup>th</sup> Floor  
Elmsford, New York 10523  
Tel. (914) 798-3710  
Fax (914) 592-1734**

**Project No. LE2043479.42  
Final Submission Date: January 24, 2020**





January 24, 2020

Mr. Gary Knowles  
Director of Facilities  
Irvington Union Free School District  
6 Dows Lane  
Irvington, NY 10533

**Subject: Final Report of Environmental Services  
Dows Lane Elementary School  
6 Dows Lane  
Irvington, NY 10533**

Dear Mr. Knowles:

WSP has completed a limited material inspection at Dows Lane Elementary School located at 6 Dows Lane, Irvington, NY. The limited inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM), Lead Based Paint (LBP) and Polychlorinated-Biphenyls (PCBs) as part of the school district's proposed renovation work at Dows Lane ES.

The attached report presents descriptions and results of the material sampling procedures and visual analysis. Relevant general project information is provided, followed by our findings, assessments and recommendations. Laboratory analysis data and certifications are provided in the Appendices.

If you have any questions concerning this report or if we may be of further assistance to you, please contact us.

Sincerely,

**WSP**

A handwritten signature in blue ink, appearing to read 'CN' or similar, written over a light blue circular stamp.

Craig Napolitano, CHMM  
Vice President, Hazmat & IH Services





# ***Final Report for Environmental Inspection Services***

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<b>3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT .....</b>	<b>7</b>
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<b>5.0 AREAS NOT ACCESSIBLE .....</b>	<b>16</b>
<b>6.0 CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>17</b>
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### **Appendices**

Appendix A: Asbestos Sample Analysis Results in Tabular Form

Appendix B: Asbestos Bulk Sample Chain of Custody & Laboratory Results

Appendix C: Asbestos Bulk Sample Location Drawings

Appendix D: Asbestos Containing Materials Location Drawings

Appendix E: Lead XRF Analysis Results

Appendix F: PCB Bulk Sample Chain of Custody & Laboratory Results

Appendix G: Company & Personnel Certifications & Laboratory Accreditations

Appendix H: Photographic Documentation





## ***Final Report for Environmental Inspection Services***

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### **1.0 EXECUTIVE SUMMARY**

WSP has completed a limited material inspection at Dows Lane Elementary School located at 6 Dows Lane, Irvington, NY. The limited inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM), Lead Based Paint (LBP) and Polychlorinated-Biphenyls (PCBs) as part of the school district's proposed renovation work at Dows Lane ES.

Drew Cheskin & Craig Napolitano of WSP performed part of the inspection on December 23, 2019. Mr. Cheskin (Cert# 05-04280) and Mr. Napolitano (Cert# 95-10994) are New York State Department of Labor (NYSDOL) Asbestos Inspectors. Mr. Cheskin (Cert# LBP-R-11931-1) is a United States Environmental Protection Agency Lead Risk Assessor.

Marvin Luccioni & Luis Nevarez of WSP performed the remainder of the inspection on January 15, 2020. Mr. Luccioni (Cert# 03-11021) and Mr. Nevarez (Cert# 12-12740) are New York State Department of Labor (NYSDOL) Asbestos Inspectors.

The results of the visual inspection and bulk sample analysis determined that the following suspect ACM, LBP and PCB materials may be impacted by the proposed renovation project at Dows Lane Elementary School.

#### **A. ASBESTOS-CONTAINING MATERIAL**

Analytical results of the bulk samples collected by WSP indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Black Putty/Glazing to Original Windows**
- **Window Frame Caulk to Original Windows**
- **Concealed Caulking**

Analytical results of the bulk samples collected by WSP indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Black Putty/Glazing to Window/Door Glass
- 12" x 12" Red Marble Floor Tile
- 12" x 12" Beige Marble Floor Tile
- Ceramic Wall Tile Backing
- Caulking @ Door Sill, Brown
- Terrazzo Flooring
- Exterior Soffit Overhang Material
- 2' x 4' Ceiling Tile
- Brick Mortar
- CMU Mortar
- Ceiling Plaster, Brown Coat





## ***Final Report for Environmental Inspection Services***

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- Patch on Ceiling Plaster, Brown Coat
- Hot Water Heater Flue/Wall Opening Sealant, Black
- Hot Water Heater Flue/Wall Opening Sealant, Beige
- Lintel Caulk assoc. with Marble Sign
- Mastic on Stage Door Panels, Yellow
- CMU Mortar
- Mastic to 4" Black Cove Base, Brown
- 4" Black Cove Base
- Glazing to Glass Panes in Doors
- Screed, Gray
- Felt/Tar Paper to ISO Insulation, Black
- Perlite Insulation, Brown
- Roofing Membrane, Black
- Perimeter Flashing Membrane/Tar, Black
- Curb Flashing, Black
- Drain Tar, Black
- Screed, Gray
- Felt/Tar Paper to ISO Insulation, Black
- Perlite Insulation, Brown
- Roofing Membrane, Black

Per previous testing, analytical results of bulk samples collected indicate that the following materials **contain asbestos** (greater than 1-percent);

- **Fire Door Insulation (Boiler Room - QUEST Project Q12-7000)**
- **Vapor Barrier (Gymnasium/Stage Hardwood Floors - QUEST Project Q12-7000)**

Per previous testing, analytical results of bulk samples collected indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Spray-On Fire Proofing (QUEST Project Q12-7000)
- Fiberglass Pipe Insulation Layers (QUEST Project Q12-7000)
- Sheetrock (QUEST Project Q12-7000)
- Joint Compound (QUEST Project Q12-7000)
- Ceiling Plasters (QUEST Project Q12-7000)
- Ceramic Wall Tile Grout (QUEST Project Q12-7000)
- Tectum Decking (QUEST Project Q12-7000)
- 1'x1' Ceiling Tiles (QUEST Project Q12-7000)
- Glue Dabs to 1'x1' Ceiling Tiles (QUEST Project Q12-7000)
- 2'x2' Ceiling Tiles (QUEST Project Q12-7000)
- Mastic to 12" x 12" Floor Tiles (QUEST Project Q12-7000)

Due to inaccessibility, the following materials are **assumed to contain asbestos** until such time as





## ***Final Report for Environmental Inspection Services***

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the materials can be made accessible for testing;

- None

### ***B. LEAD-BASED PAINT***

XRF analysis results indicate that the following testing combinations **are coated with lead-based paint** (greater than 1.0 mg/cc<sup>2</sup>);

- **Door D11 Ext., Metal Door Frame, Green**
- **Door D4 Ext., Metal Door Frame, Green**

XRF analysis results indicate that the following testing combinations **are not coated with lead-based paint** (less than or equal to 1.0 mg/cc<sup>2</sup>);

- South Entrance Ext., Metal Door Partition, Green
- South Entrance Ext., Metal Door, Green
- South Entrance Ext., Metal Overhang Column, Green
- Classroom 110 Ext., Metal Window Frame, Green
- Classroom 110 Ext., Metal Window Muntin, Green
- Door D6 Ext., Metal Door, Green
- Door D9 Ext., Metal Door, Green
- Door D9 Ext., Metal Window Sash, Green
- Classroom G4 Ext., Metal Window Frame, Green
- Classroom G4 Ext., Metal Window Sash, Green
- Classroom G2 Ext., Metal Window Frame, Green
- Classroom G2 Ext., Metal Window Sash, Green
- Classroom 107 Ext., Metal Door Frame, Green
- Classroom 107 Ext., Metal Door, Green
- Classroom 105 Ext., Metal Window Frame, Green
- Classroom 105 Ext., Metal Window Sash, Green
- Door D11 Ext., Metal Door, Green
- Door D11 Ext., Metal Window Frame, Brown
- North Entrance, Metal Door Frame, Green
- North Entrance, Metal Door, Green
- Door D4 Ext., Metal Door, Green
- Door D4 Ext., Metal Window Frame, Brown
- South Entrance Int., Gypsum Wall, Cream
- South Entrance Int., Ceramic Tile Wall, Light Brown
- South Entrance Int., Ceramic Tile Wall, Dark Brown
- South Entrance Int., Plaster Wall, Cream
- Gymnasium, Wood Stage, Black
- Gymnasium, CMU Wall, White





## ***Final Report for Environmental Inspection Services***

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- Gymnasium, Vinyl Toe Board, Black
- Gymnasium, Wood Climbing Board (plywood), Grey
- North Entrance Int., Metal Door Frame, Green
- North Entrance Int., Metal Door, Green
- North Entrance Int., Metal Radiator Cover, Green
- Boiler Room, Wood Door Frame (to hallway), Red
- Boiler Room, Metal Door (to hallway), Red
- Boiler Room, Concrete Column, Brown
- Boiler Room, Concrete Wall, Tan
- Boiler Room, Wood Panel, Black
- Boiler Room, Metal Door (to Ext.), Grey
- Boiler Room, Metal Door Frame (to Ext.), Unpainted
- Boiler Room, Concrete Floor, Red
- Boiler Room, Metal Boiler Panels, Blue
- Boiler Room, Concrete Ceiling, Black

### ***C. PCB-CONTAINING MATERIAL***

Analytical results of the bulk samples collected indicate that the following materials **contain PCB** (greater than 50 PPM).

- None

Analytical results of the bulk samples collected indicate that the following materials **did not contain PCB** (less than 50 PPM);

- Black Putty/Glazing to Window/Door Glass
- Window Frame Caulk to Original Windows
- Caulking @ Door Sill, Brown
- Lintel Caulk assoc. with Marble Sign
- Concealed Caulking

## **2.0 FIELD INSPECTION PROCEDURES AND SAMPLE ANALYSIS METHODS**

### ***ASBESTOS-CONTAINING MATERIAL***

Guidelines used for the inspection were established by the Environmental Protection Agency (EPA) in the Guidance for Controlling Asbestos Containing Materials in Buildings, Office of Pesticides and Toxic Substances, Doc 560/5-85-024, and 40 CFR Part 763, Asbestos Hazard Emergency Response Act (AHERA).

Field information was organized in accordance with the AHERA methodology of homogenous area (HA). During the Inspection, reasonable effort was made to identify all locations and types of ACM materials associated with the scope of work. Sampling has included multiple samples of the same





## ***Final Report for Environmental Inspection Services***

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materials chosen at random. However, due to inconsistencies of a manufacturer's processes and the contractor's installation methods, materials of similar construction may contain various amounts of asbestos. Furthermore, some materials that were not originally specified to contain asbestos may in fact contain this mineral. For example, cementitious pipe insulation and plaster were frequently mixed with asbestos at the construction site for ease of application. Locating all asbestos materials can only be definitively achieved by conducting exploratory demolition and sampling every section of pipe insulation, fitting or valve covering, fireproofing, and other suspect ACM.

Bulk samples of suspect ACM are analyzed using polarized light microscopy (PLM) coupled with dispersion staining, as described in 40 CFR Part 763 and the National Emissions Standard for Hazardous Air Pollutants (NESHAPS). NESHAPS is the standard industry protocol for the determination of asbestos in building materials. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The color displays that result are compared to a standardized atlas whereby the specific variety of asbestos is determined. It should also be recognized that PLM is primarily a qualitative identification method whereby asbestos percentage, if any, is estimated. While EPA, New York State, and New York City regulations governing ACM consider materials containing greater than 1-percent as asbestos, accurately quantifying asbestos content below 5-percent has been shown to be unreliable.

The New York State Department of Health has recently revised the PLM Stratified Point Counting Method. The March 25<sup>th</sup>, 2011 method, "Polarized Light Microscopy Methods for Identifying and Quantifying Asbestos in Bulk Samples" can be found as Item 198.1 in the Environmental Laboratory Approval program (ELAP) Certification manual. Whereas the procedure of analysis for bulk samples that fall into the category of "Non-friable Organically Bound" (NOB) can be found in the March 25<sup>th</sup> 2011 method "Polarized-Light Microscope Method for Identifying and Quantifying Asbestos in Non-Friable Organically Bound Bulk Samples", Item 198.6 in the ELAP Certification Manual. This category includes any sample in a flexible to rigid asphalt or vinyl matrix (floor tiles, mastic, roofing shingles, roofing felt, etc.). These samples must be "ashed" in a muffle furnace at 480-degrees Celsius (to remove organic matrix), treated with acid (to remove any mineral carbonate), and filtered through a 0.4-micron polycarbonate filter before being analyzed by PLM. The sample must be weighted between each of these steps to track the percent loss of organic matrix.

ELAP has determined that analysis of NOB materials is not reliably performed by PLM. Therefore, if PLM analysis yields results of 1-percent asbestos or less, the result must be confirmed by TEM. For bulk samples that undergo TEM analysis, the March 25<sup>th</sup>, 2011 method "Transmission Electron Microscope Method for Identifying and Quantitating Asbestos in Non-Friable organically Bound Bulk Samples" must be used and can be found as Item 198.4 in the ELAP Certification Manual. ELAP certified laboratories must include the following statement with their PLM analysis results for each "negative" (1-percent or less asbestos) NOB sample: "Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-ACM, confirmation must be made by quantitative transmission electron microscopy".





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All samples are initially analyzed by Polarized Light Microscopy in accordance with Item 198.1 and 198.6 of the ELAP Certification Manual. Samples which yield a negative PLM result and which are classified as a "non-friable" material, are then re-analyzed utilizing TEM methodology in accordance with Item 198.4 of the ELAP Certification Manual. The laboratory performing both these analysis procedures is EMSL located at 528 Mineola Ave, Carle Place, NY 11514. The laboratory has received accreditation from the following agencies:

- National Voluntary Laboratory Accreditation Program (Lab Code 101048-10)
- New York State Environmental Laboratory Approval Program (Lab No. 11469)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102344)

### **LEAD-BASED PAINT**

Painted surfaces within the space equivalents in the scope of work were identified and grouped together by component type, substrate and visible color. In similar fashion, the inspection continued in each space equivalent with the identification of unique combinations of component, substrate and visible color. A random representative area of each unique combination was sampled and tested. For each of these designated components, an area on the component was chosen which represents the paint on that building component. During the inspection, components that are accessible surfaces, friction surfaces, impact surfaces, or have deteriorated paint was identified.

The readings of paint surfaces were taken using a Heuresis Pb200i XRF Lead Paint Spectrum Analyzer. The Heuresis Pb200i method of measurement is based on the spectrometric analysis of lead K-shell X-ray fluorescence within a controlled depth of interrogation. Heuresis Pb200i Analyzer uses a Co-57 radioactive source and an advanced, solid-state, room temperature, radiation detector to generate and detect the x-ray fluorescence spectrum of a painted surface. The spectrum is then analyzed by a microprocessor to eliminate the effects of substrate and other factors such as scattering to allow an accurate determination of the amount of lead on a surface. The Heuresis Pb200i automatically analyzes spectrometric data in real time and differentiates the lead signal from the spectrum. The x-ray fluorescence properties are determined through calibration process and are used for automatic substrate correction and calculation of the lead content of a painted surface.

### **POLYCHLORINATED BIPHENYLS (PCBs)**

PCBs belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as





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plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other industrial applications.

Although no longer commercially produced in the United States, PCBs may be present in products and materials produced before the 1979 PCB ban. Products that may contain PCBs include: Transformers and capacitors, Oil used in motors and hydraulic systems, Fluorescent light ballasts, Adhesives and tapes, Caulking, Plastics, etc.

The PCBs used in these products were chemical mixtures made up of a variety of individual chlorinated biphenyl components, known as congeners. Most commercial PCB mixtures are known in the United States by their industrial trade names. The most common trade name is aroclor.

Polychlorinated biphenyls (PCBs) are regulated pursuant to the United States Environmental Protection Agency Code of Federal Regulations (40 CFR Part 761), the Toxic Substances Control Act (TSCA – 15 U.S.C. 2605), New York State Department of Environmental Conservation 6NYCRR 370-376 and federal Occupational Safety and Health Administration (OSHA) 29CFR 1926 & 1910. These regulations require certain testing and reporting requirements to determine management, recycling and disposal options for PCBs.

### **3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT**

The areas inspected for ACM, LBP and PCB materials that may be impacted by the proposed renovation project at Dows Lane Elementary School include:

- Building Envelope
- Entry Vestibules
- Gymnasium/Stage
- Boiler Room
- Library Wing

#### **A. ASBESTOS-CONTAINING MATERIAL**

Materials examined during the WSP inspection included:

- Black Putty/Glazing to Window/Door Glass
- **Black Putty/Glazing to Original Windows**
- **Window Frame Caulk to Original Windows**
- 12" x 12" Red Marble Floor Tile
- 12" x 12" Beige Marble Floor Tile
- Ceramic Wall Tile Backing
- Caulking @ Door Sill, Brown
- Terrazzo Flooring
- Exterior Soffit Overhang Material





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- 2' x 4' Ceiling Tile
- Brick Mortar
- CMU Mortar
- Ceiling Plaster, Brown Coat
- Patch on Ceiling Plaster, Brown Coat
- Hot Water Heater Flue/Wall Opening Sealant, Black
- Hot Water Heater Flue/Wall Opening Sealant, Beige
- Lintel Caulk assoc. with Marble Sign
- Mastic on Stage Door Panels, Yellow
- CMU Mortar
- Mastic to 4" Black Cove Base, Brown
- 4" Black Cove Base
- Glazing to Glass Panes in Doors
- **Concealed Caulking**
- Screed, Gray
- Felt/Tar Paper to ISO Insulation, Black
- Perlite Insulation, Brown
- Roofing Membrane, Black
- Perimeter Flashing Membrane/Tar, Black
- Curb Flashing, Black
- Drain Tar, Black
- Screed, Gray
- Felt/Tar Paper to ISO Insulation, Black
- Perlite Insulation, Brown
- Roofing Membrane, Black

Analytical results of the bulk samples collected by WSP indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Black Putty/Glazing to Original Windows**
- **Window Frame Caulk to Original Windows**
- **Concealed Caulking**

Analytical results of the bulk samples collected by WSP indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Black Putty/Glazing to Window/Door Glass
- 12" x 12" Red Marble Floor Tile
- 12" x 12" Beige Marble Floor Tile
- Ceramic Wall Tile Backing
- Caulking @ Door Sill, Brown
- Terrazzo Flooring
- Exterior Soffit Overhang Material





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- 2' x 4' Ceiling Tile
- Brick Mortar
- CMU Mortar
- Ceiling Plaster, Brown Coat
- Patch on Ceiling Plaster, Brown Coat
- Hot Water Heater Flue/Wall Opening Sealant, Black
- Hot Water Heater Flue/Wall Opening Sealant, Beige
- Lintel Caulk assoc. with Marble Sign
- Mastic on Stage Door Panels, Yellow
- CMU Mortar
- Mastic to 4" Black Cove Base, Brown
- 4" Black Cove Base
- Glazing to Glass Panes in Doors
- Screed, Gray
- Felt/Tar Paper to ISO Insulation, Black
- Perlite Insulation, Brown
- Roofing Membrane, Black
- Perimeter Flashing Membrane/Tar, Black
- Curb Flashing, Black
- Drain Tar, Black
- Screed, Gray
- Felt/Tar Paper to ISO Insulation, Black
- Perlite Insulation, Brown
- Roofing Membrane, Black

Per previous testing, analytical results of bulk samples collected indicate that the following materials **contain asbestos** (greater than 1-percent);

- **Fire Door Insulation (Boiler Room - QUEST Project Q12-7000)**
- **Vapor Barrier (Gymnasium/Stage Hardwood Floors - QUEST Project Q12-7000)**

Per previous testing, analytical results of bulk samples collected indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Spray-On Fire Proofing (QUEST Project Q12-7000)
- Fiberglass Pipe Insulation Layers (QUEST Project Q12-7000)
- Sheetrock (QUEST Project Q12-7000)
- Joint Compound (QUEST Project Q12-7000)
- Ceiling Plasters (QUEST Project Q12-7000)
- Ceramic Wall Tile Grout (QUEST Project Q12-7000)
- Tectum Decking (QUEST Project Q12-7000)
- 1'x1' Ceiling Tiles (QUEST Project Q12-7000)
- Glue Dabs to 1'x1' Ceiling Tiles (QUEST Project Q12-7000)





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- 2'x2' Ceiling Tiles (QUEST Project Q12-7000)
- Mastic to 12" x 12" Floor Tiles (QUEST Project Q12-7000)

Due to inaccessibility, the following materials are **assumed to contain asbestos** until such time as the materials can be made accessible for testing;

- None

### ***B. LEAD-BASED PAINT***

XRF analysis results indicate that the following testing combinations **are coated with lead-based paint** (greater than 1.0 mg/cc<sup>2</sup>);

- **Door D11 Ext., Metal Door Frame, Green**
- **Door D4 Ext., Metal Door Frame, Green**

XRF analysis results indicate that the following testing combinations **are not coated with lead-based paint** (less than or equal to 1.0 mg/cc<sup>2</sup>);

- South Entrance Ext., Metal Door Partition, Green
- South Entrance Ext., Metal Door, Green
- South Entrance Ext., Metal Overhang Column, Green
- Classroom 110 Ext., Metal Window Frame, Green
- Classroom 110 Ext., Metal Window Muntin, Green
- Door D6 Ext., Metal Door, Green
- Door D9 Ext., Metal Door, Green
- Door D9 Ext., Metal Window Sash, Green
- Classroom G4 Ext., Metal Window Frame, Green
- Classroom G4 Ext., Metal Window Sash, Green
- Classroom G2 Ext., Metal Window Frame, Green
- Classroom G2 Ext., Metal Window Sash, Green
- Classroom 107 Ext., Metal Door Frame, Green
- Classroom 107 Ext., Metal Door, Green
- Classroom 105 Ext., Metal Window Frame, Green
- Classroom 105 Ext., Metal Window Sash, Green
- Door D11 Ext., Metal Door, Green
- Door D11 Ext., Metal Window Frame, Brown
- North Entrance, Metal Door Frame, Green
- North Entrance, Metal Door, Green
- Door D4 Ext., Metal Door, Green
- Door D4 Ext., Metal Window Frame, Brown
- South Entrance Int., Gypsum Wall, Cream
- South Entrance Int., Ceramic Tile Wall, Light Brown





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- South Entrance Int., Ceramic Tile Wall, Dark Brown
- South Entrance Int., Plaster Wall, Cream
- Gymnasium, Wood Stage, Black
- Gymnasium, CMU Wall, White
- Gymnasium, Vinyl Toe Board, Black
- Gymnasium, Wood Climbing Board (plywood), Grey
- North Entrance Int., Metal Door Frame, Green
- North Entrance Int., Metal Door, Green
- North Entrance Int., Metal Radiator Cover, Green
- Boiler Room, Wood Door Frame (to hallway), Red
- Boiler Room, Metal Door (to hallway), Red
- Boiler Room, Concrete Column, Brown
- Boiler Room, Concrete Wall, Tan
- Boiler Room, Wood Panel, Black
- Boiler Room, Metal Door (to Ext.), Grey
- Boiler Room, Metal Door Frame (to Ext.), Unpainted
- Boiler Room, Concrete Floor, Red
- Boiler Room, Metal Boiler Panels, Blue
- Boiler Room, Concrete Ceiling, Black

### ***C. PCB-CONTAINING MATERIAL***

Analytical results of the bulk samples collected indicate that the following materials **contain PCB** (greater than 50 PPM).

- None

Analytical results of the bulk samples collected indicate that the following materials **did not contain PCB** (less than 50 PPM);

- Black Putty/Glazing to Window/Door Glass
- Window Frame Caulk to Original Windows
- Caulking @ Door Sill, Brown
- Lintel Caulk assoc. with Marble Sign
- Concealed Caulking





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### **4.0 INSPECTION RESULTS**

#### **A. ASBESTOS-CONTAINING MATERIAL**

The asbestos inspection involved a thorough visual examination of all areas that may be impacted by the proposed renovation project at Dows Lane Elementary School. The following suspect materials were sampled and analyzed for asbestos content by WSP:

**4.1 Table 4.1 – Suspect Materials Inspected**

<b>HOMOGENOUS MATERIAL</b>	<b>MATERIAL</b>	<b>SAMPLE LOCATION</b>	<b>ASBESTOS CONTENT</b>
01	Black Putty/Glazing to Window/Door Glass	Window @ Staff Lounge, Window @ Classroom 102	NAD
02	<b>Black Putty/Glazing to Original Windows</b>	<b>Window @ Cafeteria Exterior Side Exit</b>	<b>1.20% Chrysotile</b>
03	<b>Window Frame Caulk to Original Windows</b>	<b>Window @ Cafeteria Exterior Side Exit</b>	<b>1.50% Chrysotile</b>
04	12" x 12" Red Marble Floor Tile	South Entrance Lobby	NAD
05	12" x 12" Beige Marble Floor Tile	South Entrance Lobby	NAD
06	Ceramic Wall Tile Backing	South Entrance Lobby	NAD
07	Caulking @ Door Sill, Brown	South Entrance Lobby	NAD
08	Terrazzo Flooring	South Entrance Lobby	NAD
09	Exterior Soffit Overhang Material	South Entrance, Exterior	NAD
10	2' x 4' Ceiling Tile	Library	NAD
11	Brick Mortar	South Entrance, Overhang Columns	NAD
12	CMU Mortar	South Entrance Lobby, Boiler Room	NAD
13	Ceiling Plaster, Brown Coat	Boiler Room	NAD
14	Patch on Ceiling Plaster, Brown Coat	Boiler Room	NAD
15	Hot Water Heater Flue/Wall Opening Sealant, Black	Boiler Room	NAD
16	Hot Water Heater Flue/Wall Opening Sealant, Beige	Boiler Room	NAD
17	Lintel Caulk assoc. with Marble Sign	North Entrance, Exterior	NAD
18	Mastic on Stage Door Panels, Yellow	Gymnasium Stage	NAD
19	CMU Mortar	Gymnasium	NAD
20	Mastic to 4" Black Cove Base, Brown	Gymnasium	NAD
21	4" Black Cove Base	Gymnasium	NAD





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HOMOGENOUS MATERIAL	MATERIAL	SAMPLE LOCATION	ASBESTOS CONTENT
22	Glazing to Glass Panes in Doors	North Entrance	NAD
<b>23</b>	<b>Concealed Caulking</b>	<b>Gymnasium Exterior Doors</b>	<b>1.60% Anthophyllite &lt;1% Chrysotile</b>
24	Screed, Gray	Library Roof 1 & 3	NAD
25	Felt/Tar Paper to ISO Insulation, Black	Library Roof 1 & 3	NAD
26	Perlite Insulation, Brown	Library Roof 1 & 3	NAD
27	Roofing Membrane, Black	Library Roof 1 & 3	NAD
28	Perimeter Flashing Membrane/Tar, Black	Library Roof 1	NAD
29	Curb Flashing, Black	Library Roof 1 & 3	NAD
30	Drain Tar, Black	Library Roof 1 & 3	NAD
31	Screed, Gray	Gymnasium Roof	NAD
32	Felt/Tar Paper to ISO Insulation, Black	Gymnasium Roof	NAD
33	Perlite Insulation, Brown	Gymnasium Roof	NAD
34	Roofing Membrane, Black	Gymnasium Roof	NAD

**Bold = Positive for ACM**      NAD = No Asbestos Detected

### 4.2 CONDITION AND FRIABILITY ASSESSMENT TABLE

For each inspection conducted, the inspector classifies ACM or Assumed ACM materials by friability and condition. This helps to determine the extent of damage in certain areas as well as the potential for further damage and Asbestos release due to disturbance of the material.

**Table 4.2 – Condition and Friability Assessment**

Material	Material Location	Quantity	Friability	Condition
Black Putty/Glazing to Original Windows	Windows @ Cafeteria Exterior Side Exit	40 LF <sup>1</sup> (4 SF <sup>1</sup> )	N	Fair
Window Frame Caulk to Original Windows	Windows @ Cafeteria Exterior Side Exit		N	Fair
Concealed Caulking	Gymnasium Exterior Doors	30 LF <sup>1</sup> (3 SF <sup>1</sup> )	N	Fair
Fire Door Insulation (Boiler Room - QUEST Project Q12-7000)	Boiler Room	50 SF <sup>1</sup>	Y	Good
Vapor Barrier (Gymnasium/Stage Hardwood Floors - QUEST Project Q12-7000)	Gymnasium/Stage	5,000 SF <sup>1</sup>	N	Good

Notes: All quantities in this assessment are estimations and should be confirmed by the abatement contractor should abatement be





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performed.

<sup>1</sup> Represents quantity which may potentially be affected by scope of work.

### Condition Definitions:

**Good:** None/Minimal apparent damage to ACM

**Fair:** Up to 10% localized damage or up to 25% of the entire ACM is damaged

**Poor:** Over 10% localized damage or over 25% of the entire ACM is damaged

### 4.3 SAMPLE ANALYSIS TABLE

Laboratory analysis results, in tabular form, are included in Appendix A.

#### **B. LEAD-BASED PAINT**

The lead inspection involved a visual examination of all accessible areas impacted by the renovation project. The following suspect surfaces were tested for lead content:

SAMPLE LOCATION	BUILDING COMPONENT, SUBSTRATE	COLOR	CONDITIO N	RESULT (mg/cm <sup>2</sup> )
Positive Calibration	---	---	---	1.0
Positive Calibration	---	---	---	0.9
Positive Calibration	---	---	---	1.0
Negative Calibration	---	---	---	0.0
Negative Calibration	---	---	---	0.1
Negative Calibration	---	---	---	0.1
South Entrance Ext.	Metal Door Partition	Green	Intact	0.4
South Entrance Ext.	Metal Door	Green	Intact	0.0
South Entrance Ext.	Metal Overhang Column	Green	Intact	0.1
Classroom 110 Ext.	Metal Window Frame	Green	Intact	0.2
Classroom 110 Ext.	Metal Window Muntin	Green	Intact	0.4
Door D6 Ext.	Metal Door	Green	Intact	0.2
Door D9 Ext.	Metal Door	Green	Intact	0.0
Door D9 Ext.	Metal Window Sash	Green	Intact	0.1
Classroom G4 Ext.	Metal Window Frame	Green	Intact	0.0
Classroom G4 Ext.	Metal Window Sash	Green	Intact	-0.6
Classroom G2 Ext.	Metal Window Frame	Green	Intact	0.3
Classroom G2 Ext.	Metal Window Sash	Green	Intact	0.4
Classroom 107 Ext.	Metal Door Frame	Green	Intact	0.5
Classroom 107 Ext.	Metal Door	Green	Intact	0.0
Classroom 105 Ext.	Metal Window Frame	Green	Intact	0.3
Classroom 105 Ext.	Metal Window Sash	Green	Intact	0.4
<b>Door D11 Ext.</b>	<b>Metal Door Frame</b>	<b>Green</b>	<b>Intact</b>	<b>1.4</b>
Door D11 Ext.	Metal Door	Green	Intact	0.1





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SAMPLE LOCATION	BUILDING COMPONENT, SUBSTRATE	COLOR	CONDITIO N	RESULT (mg/cm <sup>2</sup> )
Door D11 Ext.	Metal Window Frame	Brown	Intact	0.2
North Entrance	Metal Door Frame	Green	Intact	0.7
North Entrance	Metal Door	Green	Intact	0.5
<b>Door D4 Ext.</b>	<b>Metal Door Frame</b>	<b>Green</b>	<b>Intact</b>	<b>1.5</b>
Door D4 Ext.	Metal Door	Green	Intact	0.1
Door D4 Ext.	Metal Window Frame	Brown	Intact	0.0
South Entrance Int.	Gypsum Wall	Cream	Intact	0.2
South Entrance Int.	Ceramic Tile Wall	Light Brown	Intact	-0.2
South Entrance Int.	Ceramic Tile Wall	Dark Brown	Intact	-0.2
South Entrance Int.	Plaster Wall	Cream	Intact	0.3
Gymnasium	Wood Stage	Black	Intact	0.0
Gymnasium	CMU Wall	White	Intact	-0.2
Gymnasium	Vinyl Toe Board	Black	Intact	0.5
Gymnasium	Wood Climbing Board (plywood)	Grey	Intact	0.1
North Entrance Int.	Metal Door Frame	Green	Intact	0.2
North Entrance Int.	Metal Door	Green	Intact	0.1
North Entrance Int.	Metal Radiator Cover	Green	Intact	0.2
Positive Calibration	---	---	---	1.0
Positive Calibration	---	---	---	1.0
Positive Calibration	---	---	---	1.0
Negative Calibration	---	---	---	0.1
Negative Calibration	---	---	---	0.1
Negative Calibration	---	---	---	0.0
Boiler Room	Wood Door Frame (to hallway)	Red	Intact	0.5
Boiler Room	Metal Door (to hallway)	Red	Intact	0.0
Boiler Room	Concrete Column	Brown	Intact	0.2
Boiler Room	Concrete Wall	Tan	Intact	0.2
Boiler Room	Wood Panel	Black	Intact	0.1
Boiler Room	Metal Door (to Ext.)	Grey	Intact	0.1
Boiler Room	Metal Door Frame (to Ext.)	Unpainted	Intact	0.1
Boiler Room	Concrete Floor	Red	Intact	0.4
Boiler Room	Metal Boiler Panels	Blue	Intact	-0.1
Boiler Room	Concrete Ceiling	Black	Intact	0.3
Positive Calibration	---	---	---	1.0
Positive Calibration	---	---	---	1.0
Positive Calibration	---	---	---	1.1
Negative Calibration	---	---	---	0.1
Negative Calibration	---	---	---	0.2
Negative Calibration	---	---	---	0.1





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### ***B. PCB-CONTAINING MATERIAL***

PCB sampling involved collection of additional quantities of caulking or glazing materials, considered suspect ACM, for PCB analysis. The following suspect materials were tested for PCB content:

HOMOGENOUS MATERIAL	MATERIAL	SAMPLE LOCATION	PCB CONTENT (PPM)
01	Black Putty/Glazing to Window/Door Glass	Window @ Staff Lounge, Window @ Library near Classroom 124, Window @ Classroom 102	ND
03	Window Frame Caulk to Original Windows	Window @ Cafeteria Exterior Side Exit	ND
07	Caulking @ Door Sill, Brown	South Entrance Lobby	ND
17	Lintel Caulk assoc. with Marble Sign	North Entrance, Exterior	ND
23	Concealed Caulking	Gymnasium Exterior Doors	3.5

**Bold = Positive for PCB**      ND = No PCB Detected

### **5.0 AREAS NOT ACCESSIBLE**

During the inspection the following areas were not accessible:

Spaces within Walls/Floors/Ceilings: No destructive sampling was performed on concealed spaces in walls to access plenum, chases etc. It should be assumed that asbestos containing materials may exist in these spaces. Any suspect materials encountered during work should be sampled for analysis before work continues.

Spaces within Building Envelope: No destructive sampling was performed to the building envelope. It should be assumed that asbestos containing materials may exist in these spaces. Any suspect materials encountered during work should be sampled for analysis before work continues.





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### **6.0 CONCLUSIONS AND RECOMMENDATIONS**

ACM and LBP materials have been identified in this inspection that may be impacted as part of the renovation project at Dows Lane Elementary School. These materials, reported in Section 3.0 of this report, may require complete removal prior to the start of any renovations. Estimated quantities of ACM materials are listed in section 4.2 of this report.

No PCB Containing Materials were identified during this inspection.

The inspection was conducted at the request of the Irvington Union Free School District to determine materials which may be impacted by the proposed renovation project at Dows Lane Elementary School. This inspection scope was based on drawings provided by the architect as well as emails/discussions with both the district and architects offering further clarification of the work. Should the scope of work change, further investigation may be warranted to accurately classify any additional ACM, LBP or PCB materials not identified in this inspection.

### **7.0 REPORT CERTIFICATIONS**

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of WSP's efforts for the environmental inspection work for the Irvington Union Free School District.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of WSP's site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which WSP is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions solely upon WSP's visual observations of accessible areas, laboratory test data, and current regulatory requirements. These conclusions are intended exclusively for the purpose stated herein and the site indicated for the project indicated.

Prepared by:

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Manager, Hazmat & IH Services

Reviewed by:

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Vice President, Hazmat & IH  
Services





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APPENDIX A  
SAMPLE ANALYSIS RESULTS IN TABULAR FORM  
DOWS LANE ELEMENTARY SCHOOL  
6 DOWS LANE  
IRVINGTON, NY 10533

Homogeneous Area No.	Sample No.	Material	Sample Location	PLM Result	TEM Result
01	01A	Black Putty/Glazing to Window/Door Glass	Window @ Staff Lounge	NAD	NAD
01	01B	Black Putty/Glazing to Window/Door Glass	Window @ Classroom 102	NAD	NAD
<b>02</b>	<b>02A</b>	<b>Black Putty/Glazing to Original Windows</b>	<b>Window @ Cafeteria Exterior Side Exit</b>	<1% Chrysotile	<1% Chrysotile
<b>02</b>	<b>02B</b>	<b>Black Putty/Glazing to Original Windows</b>	<b>Window @ Cafeteria Exterior Side Exit</b>	<1% Chrysotile	1.20% Chrysotile
03	03A	Window Frame Caulk to Original Windows	Window @ Cafeteria Exterior Side Exit	1.50% Chrysotile	NA
03	03B	Window Frame Caulk to Original Windows	Window @ Cafeteria Exterior Side Exit	NA/PS	NA
04	04A	12" x 12" Red Marble Floor Tile	South Entrance Lobby	NAD	NAD
04	04B	12" x 12" Red Marble Floor Tile	South Entrance Lobby	NAD	NAD
05	05A	12" x 12" Beige Marble Floor Tile	South Entrance Lobby	NAD	NAD
05	05B	12" x 12" Beige Marble Floor Tile	South Entrance Lobby	NAD	NAD
06	06A	Ceramic Wall Tile Backing	South Entrance Lobby	NAD	NA
06	06B	Ceramic Wall Tile Backing	South Entrance Lobby	NAD	NA
07	07A	Caulking @ Door Sill, Brown	South Entrance Lobby	NAD	NAD
07	07B	Caulking @ Door Sill, Brown	South Entrance Lobby	NAD	NAD
08	08A	Terrazzo Flooring	South Entrance Lobby	NAD	NA
08	08B	Terrazzo Flooring	South Entrance Lobby	NAD	NA
09	09A	Exterior Soffit Overhang Material	South Entrance, Exterior	NAD	NA
09	09B	Exterior Soffit Overhang Material	South Entrance, Exterior	NAD	NA
10	10A	2' x 4' Ceiling Tile	Library	NAD	NAD
10	10B	2' x 4' Ceiling Tile	Library	NAD	NAD

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Homogeneous Area No.	Sample No.	Material	Sample Location	PLM Result	TEM Result
11	11A	Brick Mortar	South Entrance, Overhang Columns	NAD	NA
11	11B	Brick Mortar	South Entrance, Overhang Columns	NAD	NA
12	12A	CMU Mortar	South Entrance Lobby	NAD	NA
12	12B	CMU Mortar	Boiler Room	NAD	NA
13	13A	Ceiling Plaster, Brown Coat	Boiler Room	NAD*	NA
13	13B	Ceiling Plaster, Brown Coat	Boiler Room	NAD*	NA
13	13C	Ceiling Plaster, Brown Coat	Boiler Room	NAD*	NA
14	14A	Patch on Ceiling Plaster, Brown Coat	Boiler Room	NAD	NA
14	14B	Patch on Ceiling Plaster, Brown Coat	Boiler Room	NAD	NA
14	14C	Patch on Ceiling Plaster, Brown Coat	Boiler Room	NAD	NA
15	15A	Hot Water Heater Flue/Wall Opening Sealant, Black	Boiler Room	NAD	NAD
15	15B	Hot Water Heater Flue/Wall Opening Sealant, Black	Boiler Room	NAD	NAD
15	15C	Hot Water Heater Flue/Wall Opening Sealant, Black	Boiler Room	NAD	NAD
16	16A	Hot Water Heater Flue/Wall Opening Sealant, Beige	Boiler Room	NAD	NAD
16	16B	Hot Water Heater Flue/Wall Opening Sealant, Beige	Boiler Room	NAD	NAD
16	16C	Hot Water Heater Flue/Wall Opening Sealant, Beige	Boiler Room	NAD	NAD
17	17A	Lintel Caulk assoc. with Marble Sign	North Entrance, Exterior	NAD	NAD
17	17B	Lintel Caulk assoc. with Marble Sign	North Entrance, Exterior	NAD	NAD
18	18A	Mastic on Stage Door Panels, Yellow	Gymnasium Stage	NAD	NAD
18	18B	Mastic on Stage Door Panels, Yellow	Gymnasium Stage	NAD	NAD
19	19A	CMU Mortar	Gymnasium	NAD	NA

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Homogeneous Area No.	Sample No.	Material	Sample Location	PLM Result	TEM Result
19	19B	CMU Mortar	Gymnasium	NAD	NA
20	20A	Mastic to 4" Black Cove Base, Brown	Gymnasium	NAD	NAD
20	20B	Mastic to 4" Black Cove Base, Brown	Gymnasium	NAD	NAD
21	21A	4" Black Cove Base	Gymnasium	NAD	NAD
21	21B	4" Black Cove Base	Gymnasium	NAD	NAD
22	22A	Glazing to Glass Panes in Doors	North Entrance	NAD	NAD
22	22B	Glazing to Glass Panes in Doors	North Entrance	NAD	NAD
<b>23</b>	<b>23A</b>	<b>Concealed Caulking</b>	<b>Gymnasium Exterior Doors</b>	<b>1.60% Anthophyllite &lt;1% Chrysotile</b>	<b>NA</b>
<b>23</b>	<b>23B</b>	<b>Concealed Caulking</b>	<b>Gymnasium Exterior Doors</b>	<b>NA/PS</b>	<b>NA</b>
24	24A	Screed, Gray	Library Roof 1	NAD	NA
24	24B	Screed, Gray	Library Roof 3	NAD	NA
25	25A	Felt/Tar Paper to ISO Insulation, Black	Library Roof 1	NAD	NAD
25	25B	Felt/Tar Paper to ISO Insulation, Black	Library Roof 3	NAD	NAD
26	26A	Perlite Insulation, Brown	Library Roof 1	NAD	NA
26	26B	Perlite Insulation, Brown	Library Roof 3	NAD	NA
27	27A	Roofing Membrane, Black	Library Roof 1	NAD	NAD
27	27B	Roofing Membrane, Black	Library Roof 3	NAD	NAD
28	28A	Perimeter Flashing Membrane/Tar, Black	Library Roof 1	NAD	NAD
28	28B	Perimeter Flashing Membrane/Tar, Black	Library Roof 1	NAD	NAD
29	29A	Curb Flashing, Black	Library Roof 1	NAD	NAD
29	29B	Curb Flashing, Black	Library Roof 3	NAD	NAD
30	30A	Drain Tar, Black	Library Roof 1	NAD	NAD
30	30B	Drain Tar, Black	Library Roof 3	NAD	NAD
31	31A	Screed, Gray	Gymnasium Roof	NAD	NA
31	31B	Screed, Gray	Gymnasium Roof	NAD	NA
32	32A	Felt/Tar Paper to ISO Insulation, Black	Gymnasium Roof	NAD	NAD

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<b>Homogeneous Area No.</b>	<b>Sample No.</b>	<b>Material</b>	<b>Sample Location</b>	<b>PLM Result</b>	<b>TEM Result</b>
32	32B	Felt/Tar Paper to ISO Insulation, Black	Gymnasium Roof	NAD	NAD
33	33A	Perlite Insulation, Brown	Gymnasium Roof	NAD	NA
33	33B	Perlite Insulation, Brown	Gymnasium Roof	NAD	NA
34	34A	Roofing Membrane, Black	Gymnasium Roof	NAD	NAD
34	34B	Roofing Membrane, Black	Gymnasium Roof	NAD	NAD

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