



architects + engineers

PROJECT MANUAL

**WHITE PLAINS CITY SCHOOL DISTRICT
5 HOMESIDE LANE
WHITE PLAINS, NEW YORK 10605**

**White Plains High School Upgrades
and Turf Field
550 NORTH STREET,
WHITE PLAINS, NEW YORK 10605**

SED Control #66-22-00-01-0-016-029

Project No: WPSD2206

CONTRACT C - CIVIL CONSTRUCTION WORK
CONTRACT E - ELECTRICAL CONSTRUCTION WORK
CONTRACT G - GENERAL CONSTRUCTION WORK
CONTRACT H - HVAC CONSTRUCTION WORK

FINAL BID DOCUMENT
July 2023

H2M Architects + Engineers

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

www.h2m.com

The work must be code compliant and conform to all applicable regulations, including the New York State Uniform Fire Prevention and Building Code, The Energy Conservation Construction Code of New York State, the Regulations of the Commissioner of Education, the NYSED Manual of Planning Standards, and regulations of all State and Federal agencies with jurisdiction.



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

Office of Facilities Planning
Room 1060 Education Building Annex
89 Washington Ave.
Albany, NY 12234
Tel: (518) 474-3906
Email: emsconf@nysed.gov
Website: www.nysed.gov/facplan

BUILDING PERMIT

ISSUED PURSUANT TO APPROVAL OF PLANS AND
SPECIFICATIONS FOR THE PROJECT BELOW:

PERMIT NO.: 22-1285 **DATE ISSUED:** 05/24/23

DISTRICT: White Plains City Schools

BUILDING: White Plains HS

ADDRESS: 550 North Street
White Plains, N.Y. 10605

(POST IN CONSPICUOUS PLACE ON PREMISES OF WORKSITE)

WHITE PLAINS CITY SCHOOL DISTRICT

**White Plains High School
Upgrades and Turf Field
SED Control No. 66-22-00-01-0-016-029**

**CONTRACT G – GENERAL CONSTRUCTION WORK
CONTRACT C – CIVIL CONSTRUCTION WORK
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 WHITE PLAINS HIGH SCHOOL (DATED OCTOBER 7, 2019)

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Notice is hereby given that **SEALED PROPOSALS** for:

WHITE PLAINS CITY SCHOOL DISTRICT

**WHITE PLAINS HIGH SCHOOL
UPGRADES AND TURF FIELD
SED Control No. 66-22-00-01-0-016-029**

**CONTRACT G - GENERAL CONSTRUCTION WORK
CONTRACT C - CIVIL CONSTRUCTION WORK
CONTRACT H - HVAC CONSTRUCTION WORK
CONTRACT E - ELECTRICAL CONSTRUCTION WORK**

will be received until **11:00 AM on Thursday, August 17th, 2023**, at the White Plains City School District Office main entrance security desk located at 5 Homeside Lane, White Plains, NY 10605. In the event that on this date the White Plains City School District is closed to all students and all staff or has an early dismissal due to weather or any other emergency that closes all schools and offices for all students and all staff prior to 3:00 PM, bids will be due at 11:00 AM on the next day that the school district is open.

Hard copies and electronic bid documents will be available beginning on **Monday, July 24th, 2023**.

Complete Digital Sets of Bidding Documents, Plans and Specifications, may be obtained online as a download at the following website: melville.h2mplanroom.com for a nonrefundable fee of **One Hundred Dollars (\$100.00) for each combined set of documents. Plans and Specifications may be obtained from REVplans, 28 Church Street, Unit 7, Warwick, New York 10990, upon deposit of One Hundred Dollars (\$100.00) for each combined set of documents.** Checks or money orders shall be made payable to **White Plains City School District**, checks should be sent directly to REVplans. Bidder's deposit will be refunded if the set is returned to REV 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. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs.

Please note REVplans melville.h2mplanroom.com is the designated location and means for distributing and obtaining all bid package information. Only those Contract Documents obtained in this manner will enable a prospective bidder to be identified as an official plan holder of record. The Provider takes no responsibility for the completeness of Contract Documents obtained from other sources. Contract Documents obtained from other sources may not be accurate or may not contain addenda that may have been issued.

All bid addenda will be transmitted to registered plan holders via email and will be available at melville.h2mplanroom.com Plan holders who have paid for hard copies of the bid documents will need to make the determination if hard copies of the addenda are required for their use and coordinate directly with the printer for hard copies of addenda to be issued. There will be no charge for registered plan holders to obtain hard copies of the bid addenda.

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 and name and address of the bidder on the outside, addressed to: **"PURCHASING AGENT, White Plains City School District"**, clearly marked on the outside, **"WHITE PLAINS HIGH SCHOOL UPGRADES AND TURF FIELD, SED NO. 66-22-00-01-0-016-029"**. The School District is not responsible for bids opened prior to the bid opening if bid number 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 White Plains City School District, as well as of improper hand delivery.

Each proposal submitted must be accompanied by a certified check or bid bond, made payable to the "White Plains City 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 will be scheduled for 11am on Thursday, August 3rd, 2023, at White Plains High School, 550 North Street, White Plains, New York 10605. Potential bidders are asked to gather at the main entrance to the building. Potential bidders are asked to contact Fred Camilli, Lead Project Executive / Consultant, for any pre-bid walk-thru questions:

Frederick Camilli
Lead Project Executive/Consultant
Field Office - Eastview Middle School
Triton Construction Company
350 Main Street - Room 233 | White Plains, NY 10601
office 212.388.5700 | mobile 516.252.7525
e-mail: fcamilli@tritonconstruction.net

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 qualified 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
White Plains City School District
5 Homeside Lane
White Plains, NY 10605

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
SED No. 66-22-00-01 0-016-029

BIDS FOR PROJECT

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

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains
SED: 66-22-00-01 0-016-029
CONTRACT G - GENERAL CONSTRUCTION AND ABATEMENT WORK
CONTRACT R - ROOF CONSTRUCTION AND ABATEMENT WORK

TIME AND PLACE

The sealed proposals are to be submitted at the:

WHITE PLAINS CITY SCHOOL DISTRICT
ADMINISTRATION OFFICE
5 Homeside Lane
White Plains NY 10605

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 5% 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. Sexual Harassment Certification form.
 - f. Insurance Certification.
 - g. 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 School District finding the bidder "non-responsive" to the bid documents.

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 School District'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 School District'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 School District 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 School District.
 - 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 prepared by a Certified Public Accountant.
4. Fully completed statement of bidder's qualification.
5. Fully completed list of subcontractors.

Envelope No. 3 SUB-CONTRACTOR BID QUALIFICATIONS:

Each contract shall submit with their bid, a third and separate sealed envelope containing the list of names of the subcontractors that the bidder will use to perform work and the agreed upon amounts to be paid for each of the following as applicable to the project.

After the low bid for each contract is announced, the sealed list of subcontractors submitted by the apparent low bidder shall be opened and the names of the subcontractors announced.

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:

Thomas Danis, Assoc. AIA

Project Designer

H2M Architects + Engineers

2700 Westchester Avenue, Suite 415

Melville, New York 11747

Phone: (914) 358-5623 ext. 2061

Fax: (914) 358-5624

E-mail: tdanis@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:

Thomas Danis, Assoc. AIA

Project Designer

H2M Architects + Engineers

2700 Westchester Avenue, Suite 415

Melville, New York 11747

Phone: (63) 756-8000 ext. 2061

Fax: (631) 894-4122

E-mail: tdanis@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 School District, the School 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, 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 successful bidder 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 considered by the School District unless the bidder tendering same demonstrates that it is skilled in work of a similar nature to that envisaged in the Contract/Bidding Documents.

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; for the amount stated in the bid proposal.

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 "WHITE PLAINS CITY 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 School District 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 therefrom.

CONTRACTOR'S UNDERSTANDING

It is understood and agreed that the bidder 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 the contract intended to be awarded.

No official, officer or agent of the School District is authorized to make any representations as to the materials or workmanship involved or the conditions to be encountered and the bidder agrees that no such statement or the evidence of any documents or plans, not a part of the contract to be awarded, shall constitute any grounds for claim as to conditions encountered. No verbal agreement or conversation with any officer, agent or employee of the School District 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 bidder 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 the School District's operations or any other contractor performing work at the project site.

EQUIVALENTS

A. In the Specifications, one or more kinds, types, brands, or manufacturers or materials listed are regarded as the required standard of quality and are presumed to be equal. The bidder may select one of these items or, if the bidder 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. Bidder 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 School District and the 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 School District with all such additional information and data for this purpose as may be requested. The School District reserves the right to reject any bid if the evidence submitted by, or investigation of such bidder fails to satisfy the School District 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 45 days after opening of bids. The School District 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.

CONTRACTOR'S QUALIFICATION STATEMENT (POST BID)

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

Triton Construction Co., Inc.

Attn: Kevin Sawyer

30 East Street, 11th Floor

New York, NY 10016

Phone: (212) 388-5700

Email: k-sawyer@tritonconstruction.net

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 unless the time to award has been extended.

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.

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 School District & Architect/Engineer and in accordance with the specifications annexed hereto and the plans referred to therein.

LABOR RATES

Each Bidder awarded a contract 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.

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
SED No. 66-22-00-01 0-016-029

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

WHITE PLAINS CITY SCHOOL DISTRICT
Board of Education
5 Homeside Lane
White Plains NY 10605

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 as well as the following Statement of Bidder's Qualifications.:

- 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

2. Type of Business Entity (e.g., sole proprietor, partnership, corporation, LLC, etc.)

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

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

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

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

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.

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).

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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

BIDDER'S DECLARATION
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

BIDDER'S DECLARATION:

The undersigned, 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 or 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 and the Contract Documents; and fully understands all the same; and it proposes and agrees, if this proposal is accepted, it will contract with the WHITE PLAINS CITY SCHOOL DISTRICT in the Contract accompanying this bid to furnish all the material, implements, etc., and perform all the work required in accordance with the Contract Documents; and it will accept in full payment therefore the following sums to wit:

Acknowledgement that the foregoing Bidder's Declaration is true and factual.

SIGNATURE	PRINT NAME	TITLE	DATE
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END OF SECTION 004105

PROPOSAL (PA)
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

Contract --- - ___ Construction
Contract --- - ___ Construction
Contract --- - ___ Construction
Contract --- - ___ Construction

To: **WHITE PLAINS CITY SCHOOL DISTRICT**
5 Homestead Lane
White Plains NY 10605

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

Made this insert day of the month day of insert Month , 20insert year

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.

BASE BID: Contract G – General Construction Work

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 3 – CONCRETE

(written in words) _____ (\$)

ITEM 6 – DIVISION 5 – METALS

(written in words) _____ (\$)

ITEM 7 – DIVISION 6 – WOOD, PLASTICS AND COMPOSITES

(written in words) _____ (\$)

ITEM 8 – DIVISION 7 – FIRESTOPPING AND SEALANTS

(written in words) _____ (\$)

ITEM 9 – DIVISION 8 – OPENINGS

(written in words) _____ (\$)

ITEM 10 – DIVISION 9 - FINISHES

(written in words) _____ (\$)

ITEM 11 – DIVISION 11 - EQUIPMENT

(written in words) _____ (\$)

ITEM 12 – PROJECT CLOSEOUT

(written in words) _____ (\$)

ALLOWANCE G1 – ALLOWANCE FOR GENERAL CONTINGENCY

(written in words) Fifty Thousand Dollars and 00 Cents (\$50,000.00)

<p>TOTAL BASE BID (ITEMS 1 – 12 INCLUSIVE, PLUS ALLOWANCE G1) (written in words) _____ (\$ _____)</p>
--

ALTERNATES

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 undersigned 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 at a subsequent date, after the base bid contract is awarded, due to additional funds provided to the school district through a Smart Schools Bond Act, 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
ALT-G1 (Add)	Contractor to provide and install new acoustical ceiling system and associated items where indicated in drawings (Wing A). This alternate shall include all material and labor for this work.	(\$ _____)
ALT-G2 (Add)	Contractor to provide and install new acoustical ceiling system and associated items where indicated in drawings (Wing B). This alternate shall include all material and labor for this work.	(\$ _____)
ALT-G3 (Add)	Contractor to provide all general construction and demolition work associated with the removal and disposal of existing acoustical ceiling tile system, and associated items where indicated in drawings (Wing G). Contractor to provide and install new acoustical ceiling system and associated items where indicated in drawings. This alternate shall include all material and labor for this work.	(\$ _____)
ALT-G4 (Add)	Contractor to provide all general construction and demolition work associated with the removal and disposal of existing acoustical ceiling tile system, and associated items where indicated in drawings (Wing E). Contractor to provide and install new acoustical ceiling system and associated items where indicated in drawings. This alternate shall include all material and labor for this work.	(\$ _____)
ALT-G5 (Add)	Builder’s Risk Insurance: All costs associated with providing and purchasing a Builder’s Risk Insurance Policy to include interest of the Owner and Contractor jointly in a form satisfactory to the owner. The limit must reflect the total completed value – all material and labor costs and provide coverage for fire, lightning, explosion, extended coverage, vandalism, malicious mischief, windstorm, hail and/or flood.	(\$ _____)

Note: The WHITE PLAINS CITY 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:

WORK DAYS:	Monday – Saturday
WORK HOURS:	7:00 AM - 8:00 PM
CONSTRUCTION START DATE:	October 1, 2023
CORRIDOR CEILINGS - WINGS C&D (BASE BID):	October 1 2023 – Jan 31, 2024 (Second Shift)
CORRIDOR CEILINGS - WING A&B (ALTS. G1 & G2):	February 1, 2024 – May 31, 2024 (Second Shift)
CORRIDOR CEILINGS - WING G&E (ALTS. G3 & G4):	June 1, 2024 – August 31, 2024 (Second Shift > Normal Shift)
SUBSTANTIAL COMPLETION:	August 3, 2024
FINAL COMPLETION:	August 31, 2024

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: () _____

FAX: () _____

FEDERAL I.D. NO. OR SOCIAL SECURITY NO.: _____

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.

BASE BID: Contract C – Civil Construction Work

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 – DEMOLITION WORK

(written in words) _____ (\$)

ITEM 5 – DIVISION 31 – EARTHWORK

(written in words) _____ (\$)

ITEM 6 – DIVISION 32 – EXTERIOR IMPROVEMENTS

(written in words) _____ (\$)

ITEM 7 – DIVISION 33 – UTILITIES

(written in words) _____ (\$)

ITEM 8 – PROJECT CLOSEOUT

(written in words) _____ (\$)

ALLOWANCE C1 – ALLOWANCE FOR GENERAL CONTINGENCY

(written in words) Fifty Thousand Dollars and 00 Cents (\$50,000.00)

ALLOWNACE C2 – ALLOWANCE FOR ROCK REMOVAL

(written in words) Fifty Thousand Dollars and 00 Cents (\$50,000.00)

TOTAL BASE BID (ITEMS 1 – 8 INCLUSIVE, PLUS ALLOWANCE C1 AND C2)
(written in words) _____ (\$)

ALTERNATES

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 undersigned 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 at a subsequent date, after the base bid contract is awarded, due to additional funds provided to the school district through a Smart Schools Bond Act, 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
ALT-C1 (Add)	Contractor to provide all general construction and demolition work associated with the removal and disposal of existing track system, and associated items where indicated in drawings. Contractor to provide and install new track system and associated items where indicated in drawings. This alternate shall include all material and labor for this work.	(\$)
ALT-C2 (Add)	Builder’s Risk Insurance: All costs associated with providing and purchasing a Builder’s Risk Insurance Policy to include interest of the Owner and Contractor jointly in a form satisfactory to the owner. The limit must reflect the total completed value – all material and labor costs and provide coverage for fire, lightning, explosion, extended coverage, vandalism, malicious mischief, windstorm, hail and/or flood.	(\$)

Note: The WHITE PLAINS CITY 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:

WORK DAYS:	Monday – Saturday
WORK HOURS:	7:00 AM - 8:00 PM
CONSTRUCTION START DATE:	October 1, 2023
NEW TURF FIELD CONSTRUCTION DATES:	October 1 2023 – July 31, 2024
LOUCKS TRACK CONSTRUCTION DATES:	June 1, 2024 – August 31, 2024
SUBSTANTIAL COMPLETION:	August 3, 2024
FINAL COMPLETION:	August 31, 2024

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):

<u>ADDENDUM NO.</u>	<u>DATED</u>
_____	_____
_____	_____

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: _____

NOTICE TO BIDDERS
WHITE PLAINS CITY SCHOOL DISTRICT



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: () _____

FAX: () _____

FEDERAL I.D. NO. OR SOCIAL SECURITY NO.: _____

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.

BASE BID: Contract H – HVAC Construction Work
--

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 7 – FIRE STOPPING

(written in words) _____ (\$)

ITEM 6 – DIVISION 23 – PIPE, VALVES, FITTINGS, PIPE HANGERS AND SUPPORTS

(written in words) _____ (\$)

ITEM 7 – DIVISION 23 – MECHANICAL SYSTEM IDENTIFICATION

(written in words) _____ (\$)

ITEM 8 – DIVISION 23 – BALANCING OF AIR SYSTEMS

(written in words) _____ (\$)

ITEM 9 – DIVISION 23 – PIPING & DUCTWORK INSULATION

(written in words) _____ (\$)

ITEM 10 – DIVISION 23 – CONTROLS

(written in words) _____ (\$)

ITEM 11 – DIVISION 23 – SHEET METAL WORK

(written in words) _____ (\$)

ITEM 12 – DIVISION 23 – DIFFUSERS, REGISTERS AND GRILLES

(written in words) _____ (\$)

ITEM 13 – AS-BUILT DRAWINGS

(written in words) _____ (\$)

ITEM 14 – PROJECT CLOSEOUT

(written in words) _____ (\$)

ALLOWANCE H1 – ALLOWANCE FOR GENERAL CONTINGENCY

(written in words) Forty Thousand Dollars and 00 Cents (\$40,000.00)

TOTAL BASE BID (ITEMS 1 –14 INCLUSIVE, PLUS ALLOWANCE H1)
 (written in words) _____ (\$)

ALTERNATES

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 undersigned 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 at a subsequent date, after the base bid contract is awarded, due to additional funds provided to the school district through a Smart Schools Bond Act, 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
ALT-H1 (Add)	Builder’s Risk Insurance: All costs associated with providing and purchasing a Builder’s Risk Insurance Policy to include interest of the Owner and Contractor jointly in a form satisfactory to the owner. The limit must reflect the total completed value – all material and labor costs and provide coverage for fire, lightning, explosion, extended coverage, vandalism, malicious mischief, windstorm, hail and/or flood.	(\$)

Note: The WHITE PLAINS CITY 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:

WORK DAYS:	Monday – Saturday
WORK HOURS:	7:00 AM - 8:00 PM
CONSTRUCTION START DATE:	October 1, 2023 (Second Shift)



SUBSTANTIAL COMPLETION: August 3, 2024

FINAL COMPLETION: August 31, 2024

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):

<u>ADDENDUM NO.</u>	<u>DATED</u>
_____	_____
_____	_____

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: () _____

FAX: () _____

FEDERAL I.D. NO. OR SOCIAL SECURITY NO.: _____

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.

BASE BID: Contract E – Electrical Construction Work
--

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 7 – FIRE STOPPING

(written in words) _____ (\$)

ITEM 6 – DIVISION 26 – ELECTRICAL DEMOLITION

(written in words) _____ (\$)

ITEM 7 – DIVISION 26 – GROUNDING AND BONDING

(written in words) _____ (\$)

ITEM 8 – DIVISION 26 – SUPPORT DEVICES and HANGERS

(written in words) _____ (\$)

ITEM 9 – DIVISION 26 – ELECTRICAL IDENTIFICATION

(written in words) _____ (\$)

ITEM 10 – DIVISION 26 – SWITCHGEAR

(written in words) _____ (\$)

ITEM 11 – DIVISION 26 – PANELBOARDS

(written in words) _____ (\$)

ITEM 12 – DIVISION 26 – WIRING DEVICES

(written in words) _____ (\$)

ITEM 13 – DIVISION 26 UTILITY SERVICES

(written in words) _____ (\$)

ITEM 14 – DIVISION 28 – TEMPORARY CONTROLS

(written in words) _____ (\$)

ITEM 15 – DIVISION 31 & 32 – EARTHWORK & EXTERIOR IMPROVEMENTS

(written in words) _____ (\$)

ITEM 16 – AS-BUILT DRAWINGS

(written in words) _____ (\$)

ITEM 17 – PROJECT CLOSEOUT

(written in words) _____ (\$)

ALLOWANCE E1 – ALLOWANCE FOR GENERAL CONTINGENCY

(written in words) Fifty Thousand Dollars and 00 Cents (\$50,000.00)

TOTAL BASE BID (ITEMS 1 –17 INCLUSIVE, PLUS ALLOWANCE E1)
 (written in words) _____ (\$)

ALTERNATES

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 undersigned 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 at a subsequent date, after the base bid contract is awarded, due to additional funds provided to the school district through a Smart Schools Bond Act, 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
ALT-E1 (Add)	Contractor shall include all labor and material cost associated with electrical work in Wing A in this alternate. Refer to floor plans for additional information.	(\$)
ALT-E2 (Add)	Contractor shall include all labor and material cost associated with electrical work in Wing B in this alternate. Refer to floor plans for additional information.	(\$)

ALT-E3 (Add)	Contractor shall include all labor and material cost associated with electrical work in Wing G in this alternate. Refer to floor plans for additional information.	(\$)
ALT-E4 (Add)	Contractor shall include all labor and material cost associated with electrical work in Wing E in this alternate. Refer to floor plans for additional information.	(\$)
ALT-E5 (Add)	Contractor shall include all labor and material cost associated with providing and install the field sports lighting and associated control panel, accessories and hardware in this alternate. Base bid will only include empty conduits and associated pullboxes with nylon pull strings. Refer to site plan for additional information.	(\$)
ALT-E6 (Add)	Contractor shall include all labor and material cost associated with providing and installing new exterior scoreboards and associated items where indicated in drawings in this alternate.	(\$)
ALT-E7 (Add)	Builder's Risk Insurance: All costs associated with providing and purchasing a Builder's Risk Insurance Policy to include interest of the Owner and Contractor jointly in a form satisfactory to the owner. The limit must reflect the total completed value – all material and labor costs and provide coverage for fire, lightning, explosion, extended coverage, vandalism, malicious mischief, windstorm, hail and/or flood	(\$)

Note: The WHITE PLAINS CITY 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:

WORK DAYS:	Monday – Saturday
WORK HOURS:	7:00 AM - 8:00 PM
CONSTRUCTION START DATE:	October 1, 2023
CORRIDOR CEILINGS - WINGS C&D (BASE BID):	October 1 2023 – Jan 31, 2024 (Second Shift)
CORRIDOR CEILINGS - WING A&B (ALTS. E1 & E2):	February 1, 2024 – May 31, 2024 (Second Shift)
CORRIDOR CEILINGS - WING G&E (ALTS. E3 & E4):	June 1, 2024 – August 31, 2024 (Second Shift > Normal Shift)
FIELD SPORTS LIGHTING & SCOREBOARDS CONSTRUCTION DATES (ALTS. E5 & E6):	November 1 2023 – July 31, 2024 (Second Shift > Normal Shift)
SUBSTANTIAL COMPLETION:	August 3, 2024
FINAL COMPLETION:	August 31, 2024

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):

<u>ADDENDUM NO.</u>	<u>DATED</u>
_____	_____
_____	_____

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: _____

NOTICE TO BIDDERS
WHITE PLAINS CITY SCHOOL DISTRICT



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: () _____

FAX: () _____

FEDERAL I.D. NO. OR SOCIAL SECURITY NO.: _____

PROPOSAL (PC)
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

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:

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 White Plains City School District may award the contract to the next lowest/responsive bidder.

Name: _____

Address: _____

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 _____

20__

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 _____

20__

Notary Public: _____

SEXUAL HARASSMENT CERTIFICATION
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

**WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD**

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: _____

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

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>

AGREEMENT
WHITE PLAINS CITY SCHOOL DISTRICT
UPGRADES AND TURF FIELD
AT WHITE PLAINS HIGH SCHOOL

AGREEMENT made as of the day of in the year of Two Thousand and Twenty-Three

BETWEEN the Owner
(Name and address)

White Plains City School District
5 Homeside Lane
White Plains, New York 10605

and the Contractor:
(Name and address)

TBD

The Project is:
(Name and location)

WPSD 2206
550 North Street
White Plains, New York 10605

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.

AGREEMENT
WHITE PLAINS CITY SCHOOL DISTRICT
UPGRADES AND TURF FIELD
AT WHITE PLAINS HIGH SCHOOL

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

AGREEMENT
WHITE PLAINS CITY SCHOOL DISTRICT
UPGRADES AND TURF FIELD
AT WHITE PLAINS HIGH SCHOOL

account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

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.

AGREEMENT
WHITE PLAINS CITY SCHOOL DISTRICT
UPGRADES AND TURF FIELD
AT WHITE PLAINS HIGH SCHOOL

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

White Plains City School District
5 Homeside Lane
White Plains, NY 10605

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. "After Hours" refers to the time before or after the hours school is in session. During this time, students and staff may occupy portions of the facility or building, but may be redirected as required to allow for the completion of work by a contractor.
- C. 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.
- D. "Board of Education" refers to the Board of Education of the School District.
- E. "Central Administration" refers to the Superintendent of Schools, his/her Assistant Superintendents, and Director of Plant & Facilities.
- F. The "Construction Manager" is the entity engaged by the School District to act as its representative during the course of construction of the Project.
- G. "Contract Documents" refers to all drawings, sketches, specifications, addenda, field directives and all other written or drawn descriptions of the products, labor and materials to be provided for the Project.
- H. 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.
- I. 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.

J. The "Off Hours" refers to a period of time during which the school facility or building shall be unoccupied, to be a duration of no less than 24 hours.

K. The "Owner" refers to the Board of Education or its designee.

L. 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.

M. 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.

N. 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.

O. 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.

P. "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.

Q. "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.

R. "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.

S. "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.

T. "Provide" means furnish and install.

U. "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.

V. "Unusual" refers to means and methods beyond any conventional or generally accepted standard of work or installation, generally requiring a standard of care and protection as outlined by a manufacturer's guidelines and recommendations.

W. 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 trade contractor certifies to be 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, the requirement of normal "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 trade 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 nor 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 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 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 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, 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 Owner's Representative 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 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 and any fines or penalties imposed as a result of any violation, including any costs or fees incurred by the Owner due to such violation. If the Contractor observes any discrepancies between portions of the Contract Documents, 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 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 upcoming 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 videotaped 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 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 others engaged by the Contractor to perform its work are prohibited from 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 cleanup 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 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.

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. Where a contractor other than the General Contractor is the only contractor scheduled to perform work in a particular area of the site at any given time, the responsibilities allocated to the General Contractor in subdivision 1 of this paragraph U shall be performed by such other contractor.

3. 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.

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 Owner, Construction Manager or 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 Owner, Construction Manager or Architect shall re-consider its determination and shall advise the Contractor of its determination upon such review. If the Owner, Construction Manager or Architect still finds that such subcontractor does not meet the requirements above-stated, it shall advise the Contractor. The Owner, Construction Manager or 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 bench marks 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 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 or 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 request in writing that it be permitted to make a substitution for the specified manufacturer or materials and shall indicate 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.

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 in triplicate to the Architect in sufficient time to allow the Architect no less than fourteen (14) working days of award of contract for review.

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

5. All proposed substitutions shall be submitted to the Architect within fourteen (14) working days of the award of the contract to the Contractor. *(This provision 6(X)(5) shall not apply to equivalents.)*

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 ten (10) 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 Construction Manager. Two (2) weeks after receipt of the Notice to Proceed, the Contractor shall provide a Site Safety/Logistics Plan to the Construction Manager. The Site Safety/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. 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 Construction Manager and Architect. The Owner and the Construction Manager shall establish a fire coordination procedure and shall forward same to the Contractor for its use during the performance of its work.

2. Effective July 1, 2008, 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.

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.

3. 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.

4. 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.

5. 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.

6. 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 of 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 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.

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

N. All interior temporary partitions and emergency egress barriers (if required) are to be installed on an after hours basis (weekends/school holidays).

O. 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 is 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.

P. 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.

Q. 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.

R. 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.

S. 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.

T. 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.

U. 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.

V. 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.

W. 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.

X. 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 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.

Y. 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.

**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 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 702/CMa 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.

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. 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.

6. 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.

7. 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;

The 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.

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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:

Contractor's Name					
Contractor's Address					
Contractor's Office Phone No.					
Contractor's Fax No.					
Contractor's Email Address					
Labor Rate Breakdown					
Worker's Title		Journeyman	1.5 Rate	Foreman	1.5 Rate
Base Hourly Rate					
Payroll Tax & Insurance:	% Per Hr.				
FICA					
Federal Unemployment					
State					
Workers Compensation					
Disability					
Other (Explanation Required)					
Subtotal					
Benefits:	\$ Per Hr.				
Vacation					
Health & Welfare					
Pension					
Annuity					
401(k) Fund					
Other (Explanation Required)					
Other (Explanation Required)					
Subtotal					
Hourly Labor Rate					

**ARTICLE 10
INSURANCE REQUIREMENTS**

A. 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:

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	General Aggregate - \$2,000,000.00 Products - Completed/Operations - \$1,000,000.00 Personal & Advertising Injury - \$1,000,000.00 Fire Damage (any one fire) - \$50,000.00 Medical Expenses (any one person) - \$10,000.00 Umbrella - \$10,000,000.00

3. Automobile Liability (all vehicles hired or non hired) \$1,000,000.00 per accident

4. If this project requires the removal of asbestos and/or hazardous materials, Contractors shall provide hazardous material liability insurance as follows:

\$1,000,000 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.

5. 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.

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. 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 or Construction Manager for the Owner's approval prior to the commencement of any work.

C. 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 of at least thirty days.

D. All insurance coverage to be provided by the Contractor shall name the Owner, the Construction Manager and the Architect as additional insureds on the policy. 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 coverage for the Contractor's work.

E. In the event that any of the insurance coverage to be provided by the Contractor to the Owner contains a deductible, or the insurance provided by the Owner contains a deductible, the Contractor shall indemnify and hold the Owner, the Architect and the Construction Manager harmless from the payment of such deductible, 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 similar insurance coverages and limits of liability as set forth in paragraph A of this Article 10 and adjusted to the nature of subcontractors' operations and submit same to the Owner for approval prior to start of any work. 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, Architect, Engineers, Construction Manager, 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 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.

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

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, Construction Manager 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 himself, to pay premiums, and to charge the cost to the Contractor.

ARTICLE 11
REQUIRED BONDS FOR THE PROJECT

- A. 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.

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 the Owner, Architect, and Construction Manager, and all their employees, agents or servants or any third parties 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 shall indemnify and hold harmless the Owner, Architect, Architect's consultants, Construction Manager and agents and employees of any of them from and against claims, damages, losses and expenses including but not limited to attorneys' fees, arising out of or resulting from performance of 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 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 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 of these General Conditions of the Contract for Construction.

D. The Contractor 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 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 shall indemnify and hold harmless the Owner, the Architect and the Construction Manager 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 shall indemnify and hold harmless the Owner and the Architect 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.

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%) 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 \$1,000.00 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. Notwithstanding anything to the contrary in the Contract Documents, an extension in the contract time, to the extent permitted under subparagraph H of this Article 13, 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 Architect 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 Architect 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 Architect 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 two (2) 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 two (2) 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.

4. In the event a court or other tribunal issues a final determination that Owner's termination for cause was arbitrary, capricious or otherwise without cause and/or reverses Owner's termination for cause, such termination shall, without further action on the part of Owner, be converted to a termination for convenience, as set forth in (B), below.

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.

END OF GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

Act ID	Description	Orig Dur	Early Start	Early Finish	2023												2024												2025
					JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN					
WHITE PLAINS HS ATHLETICS & INTERIOR UPGRADES																													
BID & AWARD																													
1410	BIDS DOCUMENTS RELEASED	0	24JUL23 *																										
1420	BID & AWARD PROCESS	15	28JUL23	17AUG23																									
1430	AWARD CONTRACTS	0		11SEP23																									
1440	SUBMITTAL REVIEW	15	12SEP23	02OCT23																									
NEW TURF FIELD																													
1505	MOBILIZE	0	03OCT23																										
1510	INSTALL PROTECTION AROUND WORK SITE	3	03OCT23	05OCT23																									
1512	PROVIDE UTILITY MARK OUT	2	03OCT23	04OCT23																									
1513	INSTALL EROSION CONTROL FENCE	3	03OCT23	05OCT23																									
1515	REMOVE EXISTING TOP-SOIL (TURN OVER TO OWNER)	6	06OCT23	13OCT23																									
1516	EXCAVATION/INSTALL DRAINAGE	25	06OCT23	09NOV23																									
1519	ROCK-REMOVAL (IF NEEDED VIA ALLOWANCE)	12	13OCT23	30OCT23																									
1522	INSTALL NEW STORMWATER RETENTION	15	31OCT23	20NOV23																									
1523	BACKFILL	8	21NOV23	30NOV23																									
1525	POSSIBLE PAUSE CONSTRUCTION (WINTER- IF NEEDED)	63	01DEC23	29FEB24																									
1528	MAINTAIN SWPP OVER WINTER PAUSE	63	01DEC23	29FEB24																									
1534	INSTALL NEW RETAINING WALLS	26	01MAR24	05APR24																									
1537	INSTALL ELECTRICAL FOR LIGHT & SCORE BOARDS	16	08APR24	29APR24																									
1540	INSTALL BASES/FOOTINGS FOR LIGHTS & SCORE BOARDS	22	08APR24	07MAY24																									
1542	INSTALL NEW LIGHTING AND SCOREBOARDS	8	08MAY24	17MAY24																									
1543	PERFORM FINAL GRADING	17	20MAY24	11JUN24																									
1546	INSTALL TURF	24	12JUN24	16JUL24																									
1549	INSTALL EQUIPMENT	7	17JUL24	25JUL24																									
1557	PERFORM FINAL INSPECTION	2	17JUL24	18JUL24																									
1750	REPAIR EXISTING CONDITIONS	8	19JUL24	30JUL24																									
1780	SUBSTANTIAL COMPLETION	0		30JUL24																									
1800	CLOSEOUT	22	31JUL24	29AUG24																									
LOUCKS FIELD TRACK REPLACEMENT																													
3500	MOBILIZE	0	31MAY24																										
3505	INSTALL PROTECTION ANCE FENCING	3	31MAY24	04JUN24																									
3508	REMOVE EXISTING TRACK	7	31MAY24	10JUN24																									
3511	INSTALL NEW ASPHALT BASE	4	11JUN24	14JUN24																									
3513	WAITING PERIOD FOR COATING	20	17JUN24	15JUL24																									
3515	INSTALL TRACK COATING AND PAINT	12	16JUL24	31JUL24																									
3556	SUBSTANTIAL COMPLETION	0		31JUL24																									
3575	CLOSEOUT	22	01AUG24	30AUG24																									

Act ID	Description	Orig Dur	Early Start	Early Finish	2023												2024												2025
					JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN					
WPHS - CEILINGS AT WINGS 'C & D'																													
1200	MOBILIZE (2ND SHIFT)	0	03OCT23																										
1210	INSTALL NEW CLASSROOM EXHAUST DUCT (2ND SHIFT)	15	03OCT23	23OCT23																									
1220	INSTALL CURBS AND EQUIPMENT (2ND SHIFT)	10	17OCT23	30OCT23																									
1230	INSTALL NEW CLASSROOM SOFFIT (2ND SHIFT)	15	24OCT23	13NOV23																									
1240	INSTALL/MODIFY MEP ROUGH-IN (2ND SHIFT)	45	03OCT23	04DEC23																									
1250	INSTALL CEILING GRID (2ND SHIFT)	45	20OCT23	21DEC23																									
1260	INSTALL LIGHTING (2ND SHIFT)	45	08NOV23	11JAN24																									
1270	INSTALL CEILING TILES (2ND SHIFT)	46	27NOV23	31JAN24																									
1280	SUBSTANTIAL COMPLETION OF AREA	0		31JAN24																									
1310	CLOSEOUT (IF ALTERNATES ARE NOT ACCEPTED)	25	01FEB24	06MAR24																									
WPHS - CEILINGS AT WINGS 'A & B'																													
2000	MOBILIZE (2ND SHIFT)	0	01FEB24																										
2010	INSTALL NEW CLASSROOM EXHAUST DUCT (2ND SHIFT)	15	01FEB24	21FEB24																									
2020	INSTALL CURBS AND EQUIPMENT (2ND SHIFT)	10	15FEB24	28FEB24																									
2030	INSTALL NEW CLASSROOM SOFFIT (2ND SHIFT)	15	22FEB24	13MAR24																									
2040	INSTALL/MODIFY MEP ROUGH-IN (2ND SHIFT)	45	01FEB24	03APR24																									
2050	INSTALL CEILING GRID (2ND SHIFT)	45	20FEB24	22APR24																									
2060	INSTALL LIGHTING (2ND SHIFT)	45	08MAR24	09MAY24																									
2070	INSTALL CEILING TILES (2ND SHIFT)	46	27MAR24	29MAY24																									
2080	SUBSTANTIAL COMPLETION	0		29MAY24																									
2110	CLOSEOUT (IF ALTERNATE IS ACCEPTED)	25	30MAY24	03JUL24																									
WPHS - CEILINGS AT WINGS 'G & E'																													
1100	MOBILIZE (2ND SHIFT)	0	30APR24																										
1102	INSTALL NEW CLASSROOM EXHAUST DUCT (2ND SHIFT)	15	30APR24	20MAY24																									
1103	INSTALL CURBS AND EQUIPMENT (2ND SHIFT)	10	14MAY24	27MAY24																									
1104	INSTALL NEW CLASSROOM SOFFIT (2ND SHIFT)	15	21MAY24	10JUN24																									
1106	INSTALL/MODIFY MEP ROUGH-IN (2ND SHIFT)	45	30APR24	01JUL24																									
1109	INSTALL CEILING GRID (2ND SHIFT BEFORE JUNE 26)	45	17MAY24	19JUL24																									
1115	INSTALL LIGHTING (2ND SHIFT BEFORE JUNE 26)	45	05JUN24	07AUG24																									
1121	INSTALL CEILING TILES	47	24JUN24	28AUG24																									
1175	SUBSTANTIAL COMPLETION	0		28AUG24																									
1375	CLOSEOUT (IF ALTERNATE IS ACCEPTED)	25	29AUG24	02OCT24																									

Company name	TRITON/ H2M
Project name	WPCSD_PH-1_BID ...
Project title	WPCSD - PHASE-1 BID SCHEDULE
Number/Version	BID 1.0
Page number	2A
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WHITE PLAINS CITY SCHOOL DISTRICT
'22 CAPITAL IMPROVEMENT PROJECT
PHASE-1 BID SCHEDULE

- Early bar
- Progress bar
- Summary bar
- Start milestone point
- Finish milestone point

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 fore 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 will 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.

PREVAILING WAGE RATES
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

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# 2023008334

<https://apps.labor.ny.gov/wpp/publicViewProject.do?method=showIt&id=1553120>

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

WHITE PLAINS CITY SCHOOL DISTRICT

Board of Education

5 Homeside Lane

White Plains NY 10605

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.

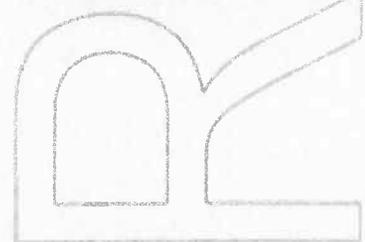
If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

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)

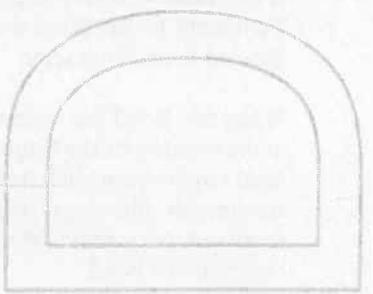
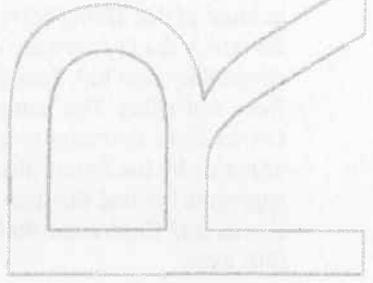
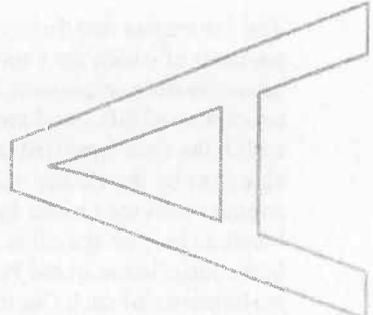
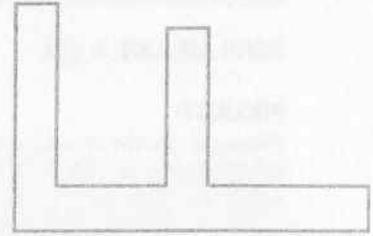
(Witness)

« » _____
(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:

« »

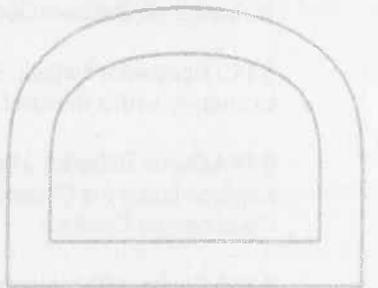
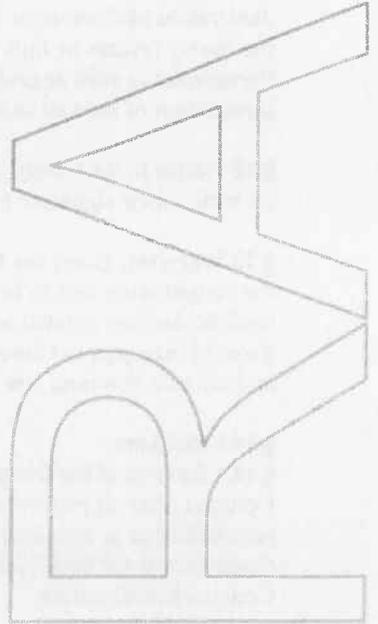
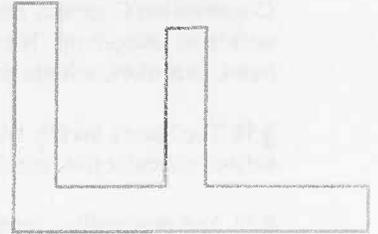
Signature:

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:

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

Signature: _____

Name and « »« »

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

« »
« »
« »

OWNER'S REPRESENTATIVE:

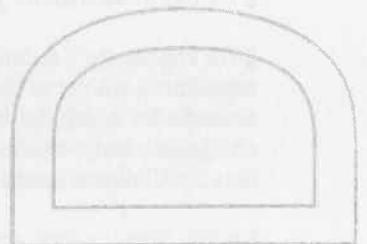
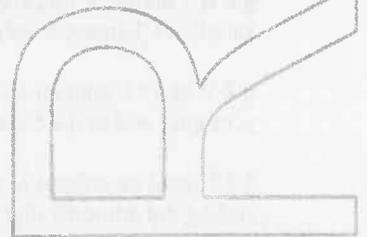
(Architect, Engineer or other party:)

« »
« »
« »
« »
« »
« »

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 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: General Construction CONTRACT FOR: 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
 - b. 0 % of Stored Material (Column F on G703) = \$0.00

- Total Retainage (Lines 5a + 5b or Total in Column I of G703)..... \$0.00
- 6. TOTAL EARNED LESS RETAINAGE..... \$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: _____ Date: _____
 By: _____
 State of: _____
 County of: _____
 Subscribed and sworn to before me this _____ day of _____
 Notary Public: _____
 My Commission expires: _____

ARCHITECT'S CERTIFICATE FOR PAYMENT

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

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

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

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 User Notes: (1899119733)

DRAFT AIA Document G704™ - 2000

Certificate of Substantial Completion

PROJECT:
(Name and address)
PWA

PROJECT NUMBER: /
CONTRACT FOR: General Construction
CONTRACT DATE:

OWNER:
ARCHITECT:
CONTRACTOR:
FIELD:
OTHER:

TO OWNER:
(Name and address)

TO CONTRACTOR:
(Name and address)

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

CONTRACTOR: (Name and address)

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).

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)

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)

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.)

Attest:
(Seal):

(Surety)

(Signature of authorized representative)

(Printed name and title)

PART 1 - GENERAL

1.01 BRIEF PURPOSE OF PROJECT / GENERAL

- A. The purpose of the project is to replace music wing casework, new corridor ceilings with associated lighting, new classroom ventilation, new turf field, new track and site drainage..
- B. This Section provides an abbreviated summary of the work for the Construction Contracts 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, WHITE PLAINS CITY 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. Modifications to existing casework, to allow for new unit ventilators. New drop ceilings and soffits in corridors.
 - 2. Project closeout submittals.
- D. All other work shown and specified within the Contract Documents for Contract G.

1.04 ABBREVIATED SUMMARY OF CONTRACT E 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. Provide, install, maintain, and repair, if necessary, temporary power and light throughout the site and to the Owner/Architect's field office. Temporary power shall be provided at location(s) selected by the Architect based on input by the General Contractor.
 - 2. Arrange for and install primary electric service.
 - 3. Main secondary feeders, power distribution, and instrumentation control wiring. Provide, mount, and install electrical conduit, wire, fittings, boxes, panels, and electrical accessories.
 - 4. All clearing, excavation, filling, and backfilling associated with the installation of underground conduit, duct bank, or wiring.
 - 5. Emergency generators including the construction of its concrete slab.
 - 6. Motor control centers, local control stations, transfer switches, power distribution panels, breakers, lights, and switches.

D. All other work shown and specified in the Contract Documents for Contract E.

1.05 ABBREVIATED SUMMARY OF CONTRACT H 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. Startup participation for the various equipment and systems of the project and provide complete service to troubleshoot and assist manufacturer service representatives in obtaining a completely functional installation.
 - 2. New electric unit heaters.
 - 3. New gas-fired unit heaters.
 - 4. New hydronic unit heaters and associated piping.
 - 5. New exhaust fans, supports, and associated equipment.
 - 6. New grilles, registers, duct work, supports and accessories.
 - 7. Furnish louvers and coordinate location for Contract G to install.
 - 8. New air conditioning system.
 - 9. Testing and balancing of systems.
 - 10. Project closeout submittals.

D. All other work shown and specified in the Contract Documents for Contract H.

1.06 ABBREVIATED SUMMARY OF CONTRACT C 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. Project closeout submittals.

1.07 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.

1.08 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. Product and equipment storage and handling requirements.
 - 4. Site safety in accordance with all applicable federal, state, and local regulations.
 - 5. 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.

1.09 OWNER SUPPLIED PRODUCTS AND UTILITIES

- A. The Owner will not be supplying equipment, labor, or tools for the project.

1.10 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
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 011100

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.

1.02 SITE ACCESS AND CONTROL

- A. Contractors shall use the designated entrance to the site as shown on the drawings. If no site entrance is designated, Contractors 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. All contractors 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. Contractors shall not close any road for any period in time. The Contractors shall take whatever measures are necessary to not cause any inconvenience to the area's residents
- D. All Contractors are responsible to employ methods to prevent construction materials and/or debris from leaving the site. All Contractors are 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 Contractors shall employ methods to prevent the transmission of dirt from vehicles driving on exposed areas of the site from reaching the surrounding roadways. The Contractors will be responsible to immediately clean the roadway, should the measures being taken by the Contractors 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 Contractors 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 Contractors for all costs associated with maintaining the grounds as well as maintaining areas outside the site, which may be disturbed by the Contractors should the Contractors fail to maintain or repair the aforementioned in a condition acceptable to the Owner.

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 Contractors 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.
 - 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. Contractors 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 Contractors.
- D. Contractors 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. Contractors 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. Immediately remove excess excavated material or relocate to areas on the site requiring placement of fill. Do not stockpile excess material on the site.
- G. 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.
- H. 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.

- I. Contractors are 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 Contractors being back charged for the cleaning cost plus construction administration fees.
- J. Use of the existing building facilities during construction is prohibited including but not limited to: toilet rooms, telephone and water fountains. Contractors shall be fined (\$250) per occurrence if their employee (or subcontractor's employee) is observed disregarding these rules.
- K. 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.
- L. Do not discard or dispose of any waste on-site.
- M. Open fires will not be permitted on the site.
- N. 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.
- O. Install erosion control measures as indicated in the Contract. The Contractor shall confine stormwater runoff to the site.

1.04 CONTRACTOR STORAGE, PARKING AND DELIVERIES

- A. Contractors 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. Contractors 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. Contractors 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 Contractors 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. Comply with the Owner's Identification and Personal Protection Policies. A copy of the current policy will be distributed at the initial job meeting.
- E. Employees shall not converse with local residents or Owner's employees.
- F. Any employee found under the influence of any drug or alcohol will be banned from the site.
- G. The following items are not allowed on the Site or the Owner's premises. Any person observed to bear any of the following items will be immediately removed from the site.
 - 1. Firearms, ammunition, weapons, and dangerous instruments (other than tools required for the work).
 - 2. Alcoholic beverages or illegal controlled substances.
 - 3. Cameras (except with written permission from the Owner).
- H. Smoking is not permitted withing the building except for outdoors at least 100 feet from any window, louver, or door. Comply with the Owner's policies relating to smoking at the Site.
- I. The Contractors 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.

1.06 UNIFORM SAFETY STANDARDS

- A. Section 155.5 Uniform Safety Standards for School Construction and Maintenance Projects

Disclaimer: These Rules of the Regents and Regulations of the Commissioner of Education ("regulations") are unofficial, and are presented for general informational purposes as a public service. Although reasonable efforts have been made to ensure that these regulations are current, complete and accurate, the State Education Department does not warrant or represent that they are current, complete and accurate. These regulations are subject to change on a regular basis. Readers are advised to consult Title 8 of the Official Compilation of Codes, Rules and Regulations of the State of New York (8 NYCRR), published by the Department of State, and the State Register <<http://www.dos.state.ny.us/info/register.htm>> for the official exposition of the text of these regulations, as well as for amendments and any subsequent changes or revisions thereto.

1. Monitoring of construction and maintenance activities.
 - a. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy and shall be monitored during construction or maintenance activities for safety violations by school district personnel. It is the responsibility of the board of education or board of cooperative educational services to assure that these standards are continuously maintained when the building or any portion thereof is occupied.
 - b. Investigation and disposition of complaints relating to health and safety received as a result of construction and maintenance activities.
 - 1) Boards of education and boards of cooperative educational services shall follow procedures established under section 155.4(d)(7) of this Part.
 - c. Pre-construction testing and planning for construction projects.
 - 1) Boards of education and boards of cooperative educational services shall assure that proper planning is made for safety of building occupants during construction. For all construction projects for which bids are issued on or after September 30, 1999, such boards shall assure that safety is addressed in the bid specifications and contract documents before contract documents are advertised for bid. All school areas to be disturbed during renovation or demolition shall be tested for lead and asbestos. Appropriate procedures to protect the health of building occupants shall be included in the final construction documents for bidding.
 - 2) Boards of education and boards of cooperative educational services shall establish procedures for involvement of the health and safety committee to monitor safety during school construction projects. The health and safety committees in school districts other than in cities with one million inhabitants or more shall be expanded during construction projects to include the project architect, construction manager, and the contractors. Such committee shall meet periodically to review issues and address complaints related to health and safety resulting from the construction project. In the case of a city school district in a city of one million inhabitants or more, the board of education shall submit procedures for protecting health and safety during construction to the commissioner for approval. Such procedures shall outline methods for compliance with this section.
 - 3) The district emergency management plan shall be updated to reflect any changes necessary to accommodate the construction process, including an updated emergency exit plan indicating temporary exits required due to construction. Provisions shall be made for the emergency evacuation and relocation or release of students and staff in the event of a construction incident.
 - 4) Fire drills shall be held to familiarize students and staff with temporary exits and revised emergency procedures whenever such temporary exits and revised emergency procedures are required.
 - d. Pre-construction notification of construction projects.

- 1) The board of education or board of cooperative educational services shall establish procedures for notification of parents, staff and the community in advance of a construction project of \$10,000 or more to be conducted in a school building while the building is occupied. Such procedures shall provide notice at least two months prior to the date on which construction is scheduled to begin, provided that in the case of emergency construction projects, such notice shall be provided as far in advance of the start of construction as is practicable. Such notice shall include information on the district's obligations under this section to provide a safe school environment during construction projects. Such notice requirement may be met by publication in district newsletters, direct mailings, or holding a public hearing on the project to inform parents, students, school personnel and community members.
- e. 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.
- f. Separation of construction areas from occupied spaces.
 - 1) 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.
 - 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.
- g. Maintaining exiting and ventilation during school construction projects.
 - 1) The following information shall be included in all plans and specifications for school building projects:
 - a) A plan detailing how exiting required by the applicable building code will be maintained during construction. The plan shall indicate temporary construction required to isolate construction equipment, materials, people, dust, fumes, odors, and noise during the construction period. Temporary construction details shall meet code-required fire ratings for separation and

- corridor enclosure. At a minimum, required exits, temporary stairs, ramps, exit signs, and door hardware shall be provided at all times.
- (b) A plan detailing how adequate ventilation will be maintained during construction. 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. The plan shall also indicate how required ventilation to occupied spaces affected by construction will be maintained during the project.
- h. Fire and hazard prevention.
 - 1) Areas of buildings under construction that are to remain occupied shall maintain a certificate of occupancy. In addition, the following shall be strictly enforced:
 - (a) No smoking is allowed on public school property, including construction areas.
 - (b) During construction daily inspections of district occupied areas shall be conducted by school district personnel to assure that construction materials, equipment or debris not block fire exits or emergency egress windows.
 - (c) Proper operation of fire extinguishers, fire alarm, and smoke/fire detection systems shall be maintained throughout the project.
 - i. Noise abatement during construction and maintenance activities.
 - 1) 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. Noise level measurements (dba) shall be taken with a type 2 sound level meter in the occupied space in a location closest to the source of the noise. Complaints regarding excessive noise shall be addressed through the health and safety committee. The district should anticipate those times when construction noise is unacceptable and incorporate "no work" periods into the bid specifications.
 - j. Control of chemical fumes, gases, and other contaminants during construction and maintenance projects.
 - 1) The bid specifications and construction contracts for each construction project shall indicate how and where welding, gasoline engine, roofing, paving, painting or other fumes will be exhausted. Care must be taken to assure fresh air intakes do not draw in such fumes.
 - 2) The bid specifications shall require schedules of work on construction and maintenance projects which include time for off-gassing of volatile organic compounds introduced during construction before occupancy is allowed. Specific attention is warranted for activities including glues, paint, furniture, carpeting, wall coverings, and drapery. Manufacturers shall be contacted to obtain information regarding appropriate temperatures and times needed to cure or ventilate the product during use and before safe occupancy of a space can be assured. Building materials or furnishings which off-gas chemical fumes, gases, or other contaminants shall be aired out in a well ventilated heated warehouse before it is brought to the project for installation or the manufacturer's recommended off-gassing periods must be scheduled between installation and use of the space. If the work will generate toxic gases that cannot be contained in an isolated area, the work must be done when school classes and programs are not in session. The building must be properly ventilated and the material must be given proper time to cure or off-gas before re-occupancy.
 - 3) Manufacturer's material safety data sheets (MSDS) shall be maintained at the site for all products used in the project. MSDS must be provided to anyone who requests them. MSDS indicate chemicals used in the product, product toxicity,

typical side effects of exposure to the product and safe procedures for use of the product.

- k. Asbestos abatement protocols.
 - 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 (12 NYCRR 56), and the Federal Asbestos Hazard Emergency Response Act (AHERA), 40 CFR part 763 (Code of Federal Regulations, 1998 Edition, Superintendent of Public Documents, U.S. Government Printing Office, Washington, DC 20402; 1998; available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234). Large and small asbestos projects as defined by 12 NYCRR 56 shall not be performed while the building is occupied. Minor asbestos projects defined by 12 NYCRR 56 as an asbestos project involving the removal, disturbance, repair, encapsulation, enclosure or handling of 10 square feet or less of asbestos or asbestos material, or 25 linear feet or less of asbestos or asbestos material may be performed in unoccupied areas of an occupied building in accordance with the above referenced regulations.
- l. Lead paint.
 - 1) 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, Washington, D.C. 20410; available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234). All areas scheduled for construction as well as areas of flaking and peeling paint shall be tested for the presence of lead and abated or encapsulated in accordance with the above noted guidelines.
- m. Radon.
 - 1) Districts shall take responsibility to be aware of the geological potential for high levels of radon and to test and mitigate as appropriate. This information is available from the New York State Department of Health Radon Measurement Database.
- n. Post construction inspection.
 - 1) The school district or board of cooperative educational services shall provide the opportunity for a walk-through inspection by the health and safety committee members to confirm that the area is ready to be reopened for use.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 011400

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. SED Commissioner's Uniform Safety Standards - Section 155.5
- B. Contractor use of the premises.

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.
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 - 4) Fire drills shall be held to familiarize students and staff with temporary exits and revised emergency procedures whenever such temporary exits and revised emergency procedures are required.
 - d. Pre-construction notification of construction projects.
 - 1) The board of education or board of cooperative educational services shall establish procedures for notification of parents, staff and the community in advance of a construction project of \$10,000 or more to be conducted in a school building while the building is occupied. Such procedures shall provide notice at least two months prior to the date on which construction is scheduled to begin, provided that in the case of emergency construction projects, such notice

shall be provided as far in advance of the start of construction as is practicable. Such notice shall include information on the district's obligations under this section to provide a safe school environment during construction projects. Such notice requirement may be met by publication in district newsletters, direct mailings, or holding a public hearing on the project to inform parents, students, school personnel and community members.

- e. 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.
- f. Separation of construction areas from occupied spaces.
 - 1) 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.
 - 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.
- g. Maintaining exiting and ventilation during school construction projects.
 - 1) The following information shall be included in all plans and specifications for school building projects:
 - (a) A plan detailing how exiting required by the applicable building code will be maintained during construction. The plan shall indicate temporary construction required to isolate construction equipment, materials, people, dust, fumes, odors, and noise during the construction period. Temporary construction details shall meet code-required fire ratings for separation and corridor enclosure. At a minimum, required exits, temporary stairs, ramps, exit signs, and door hardware shall be provided at all times.
 - (b) A plan detailing how adequate ventilation will be maintained during construction. 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. The plan

shall also indicate how required ventilation to occupied spaces affected by construction will be maintained during the project.

- h. Fire and hazard prevention.
 - 1) Areas of buildings under construction that are to remain occupied shall maintain a certificate of occupancy. In addition, the following shall be strictly enforced:
 - (a) No smoking is allowed on public school property, including construction areas.
 - (b) During construction daily inspections of district occupied areas shall be conducted by school district personnel to assure that construction materials, equipment or debris not block fire exits or emergency egress windows.
 - (c) Proper operation of fire extinguishers, fire alarm, and smoke/fire detection systems shall be maintained throughout the project.
- i. Noise abatement during construction and maintenance activities.
 - 1) 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. Noise level measurements (dba) shall be taken with a type 2 sound level meter in the occupied space in a location closest to the source of the noise. Complaints regarding excessive noise shall be addressed through the health and safety committee. The district should anticipate those times when construction noise is unacceptable and incorporate "no work" periods into the bid specifications.
- j. Control of chemical fumes, gases, and other contaminants during construction and maintenance projects.
 - 1) The bid specifications and construction contracts for each construction project shall indicate how and where welding, gasoline engine, roofing, paving, painting or other fumes will be exhausted. Care must be taken to assure fresh air intakes do not draw in such fumes.
 - 2) The bid specifications shall require schedules of work on construction and maintenance projects which include time for off-gassing of volatile organic compounds introduced during construction before occupancy is allowed. Specific attention is warranted for activities including glues, paint, furniture, carpeting, wall coverings, and drapery. Manufacturers shall be contacted to obtain information regarding appropriate temperatures and times needed to cure or ventilate the product during use and before safe occupancy of a space can be assured. Building materials or furnishings which off-gas chemical fumes, gases, or other contaminants shall be aired out in a well ventilated heated warehouse before it is brought to the project for installation or the manufacturer's recommended off-gassing periods must be scheduled between installation and use of the space. If the work will generate toxic gases that cannot be contained in an isolated area, the work must be done when school classes and programs are not in session. The building must be properly ventilated and the material must be given proper time to cure or off-gas before re-occupancy.
 - 3) Manufacturer's material safety data sheets (MSDS) shall be maintained at the site for all products used in the project. MSDS must be provided to anyone who requests them. MSDS indicate chemicals used in the product, product toxicity, typical side effects of exposure to the product and safe procedures for use of the product.
- k. Asbestos abatement protocols.
 - 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 (12 NYCRR 56), and the Federal Asbestos Hazard Emergency Response Act (AHERA), 40 CFR part 763 (Code of Federal

Regulations, 1998 Edition, Superintendent of Public Documents, U.S. Government Printing Office, Washington, DC 20402; 1998; available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234). Large and small asbestos projects as defined by 12 NYCRR 56 shall not be performed while the building is occupied. Minor asbestos projects defined by 12 NYCRR 56 as an asbestos project involving the removal, disturbance, repair, encapsulation, enclosure or handling of 10 square feet or less of asbestos or asbestos material, or 25 linear feet or less of asbestos or asbestos material may be performed in unoccupied areas of an occupied building in accordance with the above referenced regulations.

- i. Lead paint.
 - 1) 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, Washington, D.C. 20410; available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234). All areas scheduled for construction as well as areas of flaking and peeling paint shall be tested for the presence of lead and abated or encapsulated in accordance with the above noted guidelines.
- m. Radon.
 - 1) Districts shall take responsibility to be aware of the geological potential for high levels of radon and to test and mitigate as appropriate. This information is available from the New York State Department of Health Radon Measurement Database.
- n. Post construction inspection.
 - 1) The school district or board of cooperative educational services shall provide the opportunity for a walk-through inspection by the health and safety committee members to confirm that the area is ready to be reopened for use.

1.07 CONTRACT REQUIREMENTS RELATED TO MAINTAINING OWNER'S CURRENT OPERATIONS AND EXCESS INSPECTION REQUIRED

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 011400.11

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Site Utilization Plan requirements

1.02 SITE UTILIZATION PLAN REQUIREMENTS

- A. Each 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. Each 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. Each 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 011419

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.

ALLOWANCES
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 012100

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section specifies the requirements for measurements and records made for payment purposes and describes the item(s) under which payment(s) will be made for the Work performed under this Contract.
- B. All work shown or specified in the Contract Documents shall be performed.
- C. Items not specified to be measured or paid for (for which no specific pay item exists in the Price Schedule) shall be included in an appropriate unit price item or in a lump-sum item.
- D. Comply with the requirements pertaining to the restoration of all surfaces, which may or may not be paid for under a separate unit price item, and which shall be restored to a condition equal to or better than that existed prior to work starting under this contract.

1.02 MEASUREMENT REQUIREMENTS

- A. All required measurements shall be made by the Contractor with the Architect.
- B. Any measurements not witnessed by Architect and which cannot be verified or substantiated by Architect will not be approved and payment under the item(s) requiring such measurements will not be made.
- C. Coordinate measurements monthly, for the preparation of periodic pay estimates.
- D. Where payments will be made for removing rock and existing materials, notify Architect so that he may witness the measurements.
 - 1. All materials removed without conforming to the above procedures, which Architect cannot verify or substantiate, will not be paid for.
 - 2. Maintain complete, neat, clean, and legible field notes for all measured items.
 - 3. Notes shall contain spaces for Contractor's and Architect's signatures plus additional space for comments.
 - 4. An original and a carbon copy shall be made for all notes and one copy shall be turned over to Architect daily.
 - 5. The Architect's signature shall not be constituted as an acceptance of the work, or the measurements made, but shall mean that he was present when the measurements were made.

1.03 SUBMITTALS

- A. Field notes of all measurements for payment purposes delivered to Architect daily.
- B. Copies of all invoices required for payments out of cash allowance(s).
- C. Monthly Applications for Payment.
- D. Record Drawings showing the locations and quantities of all items measured for payment purposes.

1.04 SCHEDULING

- A. Notify Architect, as far in advance as possible, of the recording of measurements so that a representative of the Architect may observe existing conditions, work being performed, and measurements being made.
- B. Allow for and afford Architect ample time, space, and equipment to observe measurements and to verify measurements and elevations.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Provide all labor, materials, facilities, levels, measuring devices and all other equipment and items necessary to properly and accurately perform all measurements for payment purposes.
- B. Payment for certain items not specifically listed in the bid forms but otherwise required by the technical specifications shall be deemed included as part of the General Conditions and the individual unit price and lump sum bid items provided for in the proposal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Perform all measuring required under this Section.
- B. Record all measurements and calculated quantities on the Record Drawings.
- C. No measurement shall be made for work performed within the limits of Lump Sum Items.

ITEM NO.	ITEM DESCRIPTION
1	

END OF SECTION 012200

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submission procedures.
- B. Documentation of changes to Contract Sum/Price and Contract Time.

1.02 RELATED SECTIONS

- A. Proposal Form.
- B. Other sections referencing this section.
- C. All contractual requirements outlined in the documents.

1.03 SUBMISSION REQUIREMENTS

- A. Submit Alternates on Proposal Forms identifying the effect on adjacent or related components.
- B. Alternates will be reviewed and accepted or rejected at the Owner's option.
- C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SELECTION AND AWARD OF ALTERNATES

- A. Indicate variation of Bid Price for Alternates listed on the PROPOSAL FORM. This form requests a "difference" in Bid Price by adding to or deducting from the base Bid Price.
- B. Alternates quoted on PROPOSAL FORM will be reviewed and accepted or rejected at Owner's option.
- C. Accepted alternates will be identified in Owner-Contractor Agreement.
- D. Bids will be evaluated on the base bid price, plus any combination of alternate items.

1.05 WORK FOR ALTERNATES

- A. Work for alternate items selected shall include all related materials, labor, equipment and operations necessary to conduct and complete the alternate work and all other affected work or adjacent areas.
- B. There shall be no change in time or completion date for the selected alternates, unless specified herein or approved in writing by the Architect and Owner.
- C. Alternates and associated work shall meet all standards and specifications delineated in the Contract Documents.
- D. Contractor shall coordinate pertinent related Work and modify surrounding Work as required to complete the project under each alternate selected by the Owner.

ALTERNATES
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 PROCEDURES

- A. Work for each alternate, related items and collateral work shall be completed in their entirety.
- B. If alternate items are not selected, work for the base bid and collateral work shall be completed in their entirety.

END OF SECTION 012300

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. 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 other Prime Contractors, 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.

PART 3 - EXECUTION

NOT USED

This space left intentionally blank.

REQUEST FOR SUBSTITUTION FORM

Project: HIGH SCHOOL UPGRADES AND TURF FIELD Substitution Request Number: _____

Contractor: _____

Address: _____

To: _____ Date: _____

H2M Project Number: WPSD2206 Owner: WHITE PLAINS CITY 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 012500

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.

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.

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.

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 012900

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. Communication and coordination requirements
- 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. Each 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. Each Contractor shall employ an on-site superintendent as specified herein below. He/She shall be a full-time employee of the Contractor.
- B. Each 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. Each Superintendent shall have a minimum of five (5) years of experience as a job site superintendent for projects of equal size and complexity.
- E. Each superintendent shall be qualified to perform the duties so required to successfully complete the work in accordance with the Contract Documents.

- F. Each 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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REQUEST FOR INTERPRETATION/INFORMATION (RFI)

OWNER'S NAME: WHITE PLAINS CITY SCHOOL DISTRICT

PROJECT NAME & CONTRACT DESIGNATION: HIGH SCHOOL UPGRADES AND TURF FIELD

CONSTRUCTION CONTRACT NO.: WPSD2206

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 Contractor's Signature & Date</i>
<p>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.</p>	

PROJECT MANAGEMENT AND COORDINATION
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 013100

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.

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 contractor's 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. 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.
- F. 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.
- G. 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.
- H. Subcontractors shall attend when requested by the Owner or Owner's Construction Representative at no cost to the Owner.
- I. Meetings will be conducted by Owner's Construction Representative at a location selected by the Owner, normally at or adjacent to the project site.
- J. 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.
 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 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 013119

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section specifies the requirements for preparing construction schedules and for keeping them up to date.

1.02 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 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.

1.03 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.

1.04 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).

1.05 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.

1.06 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.

1.07 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.

1.08 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.

1.09 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 013216

SURVEYING
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

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END OF SECTION 013223

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.

- 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. HVAC units.
 - c. Ductwork shop drawings
 - d. Electrical fixtures and panels.
 - e. Asbestos Abatement submittals & Plan.

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.

- 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
 - 5 Homeside Lane, White Plains NY 10605

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

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.

- 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.

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.

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. 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.
- C. 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.
- D. The Contractor shall make all measurements, confirm existing conditions, and include them on the shop drawings before making a submission to the Architect.
- E. Submissions for a single item, or group of related items shall be complete.
- F. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
- G. 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.
- H. When submitting manufacturers' catalogs, pamphlets or other data sheets, in lieu of prepared shop drawings, clearly mark the items being submitted for review.
- I. 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.
- J. 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.
- K. 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.
 - 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.
- 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.

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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

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SUBMITTALS
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CONTRACTOR'S COMPANY NAME
 ADDRESS

SUBMISSION TRANSMITTAL FORM

CLIENT NAME: WHITE PLAINS CITY SCHOOL DISTRICT
PROJECT TITLE: HIGH SCHOOL UPGRADES AND TURF FIELD

H2M PROJECT NO.: WPSD2206

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:	<input type="checkbox"/> No	<input type="checkbox"/> 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.		

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END OF SECTION 013300

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. Obtain a New York Board of Fire Underwriters inspection and certificate.

- D. The following permits and/or certifications will be obtained by the Owner from the appropriate permitting agencies:
- 1.

1.05 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.

1.06 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.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 014100

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 014223

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 014320

SECTION 014500.01
STATEMENT OF SPECIAL INSPECTION AND TESTS

NYS EDUCATION DEPARTMENT Office of Facilities Planning, Room 1060 EBA Albany, NY 12234	STATEMENT OF SPECIAL INSPECTIONS AND TESTS As required by the 2015 International Building Code (IBC)
BCNYS § 1704.3 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 Building Department with the Construction Permit Application is a condition for issuance of the Building Permit.	
School District WHITE PLAINS CITY SCHOOL DISTRICT	Building _____
Project Title HIGH SCHOOL UPGRADES AND TURF FIELD	
SED Project # _____	Project Address _____
Architect/Engineer H2M architects + engineers	
Name of Person Completing this Statement _____	Phone _____ Date mm-dd-yyyy
Comments _____	

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N O U S	P E R I O D I C	REFERENCE STANDARD	B R C E N F Y E S R E N C E	C R H E E Q C U K I R I E F D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
A. Steel Construction						
1. Material verification of high-strength bolts, nuts and washers.		X	Applicable ASTM material specifications. AISC 360-10 & N5	1704.3		
2. Inspection of high-strength bolting.		X	AISC 360-10 & N5	1704.3		
3. Material verification of structural steel.			ASTM A 6 or A 568 AISC 360-10 & N5	1704.3		051200

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N U O U S	P E R I O D I C	REFERENCE STANDARD	B R C E N F Y E S R E N C E	C R H E E Q U I R I E D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
4. Material verification of weld filler materials.			AISC 360-10 & N5	1704.3		051200
5. Inspection of welding:			AWS D1.1, D1.3, D1.4; ACI 318: 3.5.2 AISC 360-10 & N5	1704.3, 1704.3.1,		051200
a. Structural steel		X	NOTE: Special inspector shall perform ultrasonic testing of all full penetration welds.	1704.3, 1705.12.1		051200
b. Reinforcing steel		X				
6. Inspection of steel frame joint details.		X		1705.2.3		
B. Concrete Construction				1705.3 Table 1705.3		
1. Inspection of reinforcing steel, including prestressing tendons, and placement.		X	ACI 318: Ch. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4		033000
2. Inspection of reinforcing steel welding.			AWS D1.4; ACI 318: 26.5.4	Table 1705.3		
3. Inspection of bolts to be installed in concrete prior to and during placement.	X		ACI 318: 17.8.2	Table 1705.3		033000
4. Verify use of required design mix.		X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3		033000
5. Sampling fresh concrete: slump, air content, temperature, strength test specimens.	X		ASTM C 172, C 31; ACI 318: 26.4.5, 26.12	1704.4, 1905.6, 1914.10		033000
6. Inspection of placement for proper application techniques.	X		ACI, 318: 26.4.5	1908.6, 1908.7, 1908.8, 1908.10		033000

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N U O U S	P E R I O D I C	REFERENCE STANDARD		B R C E N F Y E S R E N C E	C R H E E Q U I R I E D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
7. Verify maintenance of specified curing temperature and techniques.		X	ACI, 318: 26.4.7-26.4.9		1908.9		033000
8. Inspection of prestressed concrete.	X		ACI 318: 26.9.2.1		Table 1705.3		
9. Erection of precast concrete members.		X	ACI 318: Ch. 26.8				
10. Verification of in-situ concrete strength prior to stressing of tendons and prior to removal of shores and forms from beams and slabs. 11. Inspect formwork for shape, location and dimensions of the concrete member being formed		X	ACI 318: 26.10.2				033000
C. Masonry Construction A= Level A Quality Assurance B = Level B Quality Assurance C = Level C Quality Assurance			ACI 530/ ASCE5/ TMS402 Table 3.1.1	ACI530.1 /ASCE6/ TMS602	1705.4		
Levels A and B A1. Verify to certificates to ensure compliance: B1. Verify certificates to ensure compliance.		X					
Level B B2. Proportions of site prepared mortar and grout.		L1 L2					042200
B3. Placement of masonry units and construction of mortar joints.		L1 L2					042200
B4. Location and placement of reinforcement, connectors, tendons, anchorages.		L1 L2					042200

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N U O U S	P E R I O D I C	REFERENCE STANDARD		B R C E N F Y E S R E N C E	C R H E E Q U I R I E D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
B5. Prestressing technique and installation.		L1					
B6. Grade and size of tendons and anchorages.		L1					042200
B7. Grout specs prior to grouting.	L2						
B9. Placement of grout.	L2						
B10. Grouting of tendons.	L2						
Level C:					1705.4		
C1. Size and location of structural elements.		L1 L2	ACI530/ ASCE5/ TMS402	ACI530.1 /ASCE6/ TMS602	1705.4		042200
C2. Type, size, and location of anchors.	L2	L1					042200
C3. Specified size, grade, and type of reinforcement.		L1 L2					042200
C4. Welding of reinforcing bars.	L1 L2						
C5. Cold/hot weather protection of masonry construction.		L1 L2					042200
C6. Prestressing force measurement and application.	L2	L1					
C7. Inspection prior to grouting.	L2	L1					042200
C8. Grout placement.	L1						042200
C9. Preparation of grout specimens, mortar specimens, and/or prisms.	L1 L2						042200
C10. Compliance with documents and submittals.		L1 L2					042200

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N U O U S	P E R I O D I C	REFERENCE STANDARD	B R C E N F Y E S R E N C E	C R H E Q C U K I R I E F D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
D. Wood Construction: 1. Fabrication of wood structural elements and assemblies. 2. High-load diaphragms designed in accordance with Table 2306.3.2				1705.5 1705.11.1 1705.12.2 1705.5		
E. Soils				1705.6		
1. Site preparation.		X				312317
2. During fill placement.	X					312317
3. Evaluation of in-place density.		X				312317
F. Pile Foundations: Installation and load tests.	X			1705.7-.9 Table 1705.7		
G. Pier Foundations: Seismic Design Category C, D, E, F.				1705.12- 1705.12.9		
H. Wall Panels and Veneers: Seismic Design Category E, F.				1705.12 - 1705.12.9		

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N U O U S	P E R I O D I C	REFERENCE STANDARD	B R C E N F Y E S R E N C E	C R H E Q C U K I R I E F D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
I. Sprayed Fire-Resistant Materials				1705.14		
1. Structural member surface conditions.				1705.14.2		
2. Application.				1705.14.3		

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N U O U S	P E R I O D I C	REFERENCE STANDARD	B R C E N F Y E S R E N C E	C R H E Q U I R E D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
3. Thickness.			ASTM E 605	1705.14.4		
4. Density.			ASTM E 605	1705.14.5		
5. Bond strength.			ASTM E 736	1705.14.6		
J. Exterior Insulation and Finish Systems (EIFS)				1705.16		
K. Mastic and Intumescent Coatings				1705.15		
L. Smoke Control				1705.18		
M. Special Inspections for Seismic Resistance:						
1. Structural steel.	X		AISC 341	1705.12.1		
2. Structural wood.	X			1705.12.2		
3. Cold-formed steel framing.		X		1705.12.3		
4. Storage racks and access floors.		X		1705.12.7		
5. Architectural components.		X		1705.12.5		
6. Mechanical and electrical components.		X		1705.12.6		
7. Seismic isolation system.		X	ASCE7	1705.12.8		
N. Structural Testing for Seismic Resistance: Applicable to specific structures, systems, and components.				1705.13		
1. Testing and verification of masonry materials and assemblies.				1705.13 1708.2		
2. Testing for seismic resistance.				1705.13 1708.2		
3. Reinforcing and prestressing steel.			ACI 318	1705.13		
4. Structural steel.			AISC 341 AWS D1.1	1705.13		
5. Mechanical and electrical equipment.				1705.13		
6. Seismically isolated structures.			Section 17.8 of ASCE 7	1705.13		
O. Structural Observations						
1. Seismic resistance 2 Wind Requirements				1704.6.1 1704.6.2	X	14500
P. Test Safe Load				1708.2		
Q. In-Situ Load Tests				1708.3		

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	C O N T I N U O U S	P E R I O D I C	REFERENCE STANDARD	B R C E N F Y E S R E N C E	C R H E Q C U K I R I E F D	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
R. Preconstruction Load Tests				1709.1		
S. Other (list)						

END OF SECTION 014500.01

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Asbestos and lead-based paint certification.
- B. Moisture control.

1.02 ASBESTOS AND LEAD-BASED PAINT CERTIFICATION

- A. Contractor shall submit the enclosed "Asbestos and Lead-Based Paint Certification" upon completion of all work.

1.03 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.

1.04 SUBMITTALS

- A. Contractor shall submit completed and notarized "Certification of Asbestos and Lead-Based Paint" form.

ENVIRONMENTAL QUALITY CONTROL
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

This space left intentionally blank.

**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 014536

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 _____ 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 contractor's 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, active 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 Contractor's 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 orders / 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 015000

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 General Construction 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 Electrical 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 General Construction 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 General Construction and the other Prime Contractors 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. Each 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 GENERAL CONSTRUCTION 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 General Construction 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.
 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 General Construction Contractor shall inventory all equipment that has been turned back to the Contractor prior to agreeing to final payment.

END OF SECTION 015213

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 016100

PRODUCT DELIVERY, STORAGE AND HANDLING

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

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.

PRODUCT DELIVERY, STORAGE AND HANDLING

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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 016500

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. Each 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.

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 017329

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.

- 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. Replace all broken and scratched glass and mirrors.
 - 9. Replace all damaged insect screens.
 - 10. 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.
 - 11. Polish bright metal by damp wiping and drying with a suitable cloth. If a polished appearance is not thereby produced, apply appropriate metal polish.
 - 12. Clean and polish all stainless steel surfaces, including control panels supplied under this Contract.
 - 13. Clean furniture and equipment in accordance with manufacturers instructions.
 - 14. 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.
 - 15. Repair or repaint damaged pavement markings.
 - 16. 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.
 - 17. Clean supply vents and exhaust grilles. Clean gutters and downspouts.

18. Remove all rust spots and stains from new and pre-existing concrete, painted surfaces, and all other surfaces.
19. Clean and polish all new toilet facilities constructed under this project.
20. Clean and disinfect all pre-existing toilet facilities that were entered upon and used by the Contractor during the project.
21. Replace damaged existing toilet fixtures, such as sinks, toilet bowls, urinals, and mirrors, with in-kind units if so directed by the Architect.
22. Wash all existing floors that were in any way impacted by the construction operations.
23. Rake clean landscaped surfaces. Final mow all areas grassed and sodded during the work.
24. 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.
25. Polish all new handrail installed as work of this contract with a commercially available aluminum cleaner recommended by the railing manufacturer.
26. Clean dirt that has accumulated between grating and grating angles/supports.
27. Vacuum the inside of all control panels provided under this Contract after the panel has been wired.
28. Fill in all holes in concrete that remain after temporary handrail is removed. Non-shrink grout shall be used.
29. Elevators: Clean all interior surfaces of the car including hoistway doors and services of the corridors on the side of the elevator. Polish all bright metal surfaces. Clean and spray buff resilient tiles. Dust and damp wipe elevator cab doors, walls and bright work.
30. 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 017423

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
- B. Work of this Section also includes stipulated man-hours that shall be provided by the **Prime Electrical Construction Contractor** for startup participation of equipment and systems.

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.
- 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.
- L. Submit manufacturer's start-up reports (MSR's) in accordance with Section 013300.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 017500

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. Training and Demonstrations (provide sign-in from training session)
 16. 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 017800

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. Where emergency generator(s) are included as work of this Contract, the manufacturer's standard manual will be allowed if the manual clearly shows the instructions for the particular model of generator. Cross out chapters and paragraphs that do not apply to the Owner's generator.

- J. 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. Operation instructions including adjustments, the interrelation of components and the control sequence describing break-in, start-up, operation and shutdown
 - 7. Emergency operating instructions and capabilities
 - 8. Maintenance requirements include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair and reassembly instructions; and alignment, adjusting, balancing, and checking instructions
 - 9. 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
 - 10. Drawings (pictures or exploded views) which clearly depict and identify each part, suitable for assembly and disassembly of entire system and each component
 - 11. Wiring and control diagrams, if applicable
 - 12. Panelboard circuit directories including electrical service characteristics, if applicable
 - 13. Part list with current prices; ordering information; and recommended quantities of spare parts to be maintained in storage
 - 14. Charts of valve tag numbers, with location and function of each valve, keyed to the process and instrumentation diagram prepared as part of the Contract Documents
 - 15. Name, address, and telephone number of nearest parts supply house and nearest authorized repair service center.
 - 16. List of recommended spare parts and the recommended number of each per unit and per group of units.

- K. All electronic Operations and Maintenance Manuals shall be as specified hereinafter.
 - 1. All files shall be in Adobe PDF format and submitted on compact discs.
 - 2. Files shall be organized by specification section and then by product.
 - 3. An electronic index and list of all charts, graphs, tables, figures, and shop drawings shall be included.
 - 4. All information provided in the paper Operations and Maintenance Manual shall be included in the electronic version.

- L. 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. One (1) manual will be used at start-up, to record changes that should be made to the final manual.
 - 4. This copy of the manual will be retained on the site until such time as the final, updated manual is provided.

- M. 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).

- N. 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 017823

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.

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.

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. Shop Drawings: Maintain as record documents. Legibly mark-up to show changes made due to field conditions encountered during construction.

1.05 PROJECT RECORD DOCUMENTS

- A. Maintain a complete and accurate log of control and survey work as it progresses.

1.06 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.

1.07 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 017839

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

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 017843

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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HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
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H2M

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 017900

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.

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.
 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 024119

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Formwork, shoring, bracing and anchorage.
- B. Concrete reinforcement and accessories.
- C. Cast-in-place concrete, equipment pads.
- D. Concrete curing and finishing.
- E. Grout.

1.02 RELATED SECTIONS

- A. Section 014500 - QUALITY CONTROL.

1.03 REFERENCES

- A. ACI 301 - Specifications for Concrete Construction; 2020.
- B. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- C. ACI 305R - Guide to Hot Weather Concreting; 2020.
- D. ACI 308R - Guide to External Curing of Concrete; 2016.
- E. ACI 318 - Building Code Requirements for Structural Concrete; 2019, with Errata (2021).
- F. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2016.
- H. ASTM A775/A775M - Standard Specification for Epoxy-Coated Steel Reinforcing Bars; 2019.
- I. ASTM C150/C150M - Standard Specification for Portland Cement; 2016.
- J. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- K. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
- L. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.
- M. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019.
- N. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2019.

- O. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2018.
- P. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting; 2015.
- Q. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300 - SUBMITTALS.
- B. Shop Drawings: Indicate reinforcement sizes, spacings, and locations of reinforcing steel and wire fabric, bending and cutting schedules, splicing, and supporting and spacing devices. Indicate formwork dimensioning, materials, arrangement of joints and ties.
- C. Design Data: Provide a concrete mix design for each type of concrete to be utilized on the project prior to commencement of work. The Contractor's testing laboratory shall develop concrete mix designs and test all materials and mixes for conformance with these specifications. The costs associated with development of the design mix and testing of samples shall not be paid out stipulated cash allowance and shall be included in the bid price.
- D. Furnish the Engineer's field representative with transit-mix delivery slips.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Maintain one copy of document on site.
- C. Concrete Testing Service: Engage a testing laboratory acceptable to the Architect to perform material evaluation tests and to design concrete mixes under provisions of Section 014500 - QUALITY CONTROL.
- D. For each mix proposed, make and cure four (4) standard 6 inch concrete test specimens in the lab in accordance with ASTM C192. Furnish compression test results made in accordance with 1. Break two (2) cylinders at seven (7) days and two (2) at twenty-eight (28) days.

1.06 QUALIFICATIONS

- A. Prepare shop drawings under seal of professional structural engineer licensed in the state in which the project is located.

1.07 REGULATORY REQUIREMENTS

- A. Conform to ACI 301 and all applicable codes for placement of concrete and related work.

1.08 COORDINATION

- A. Coordinate work prior to commencement of work.
- B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors and other inserts.

- C. Notify Engineer minimum 72 hours prior to commencement of concreting operations.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Conform to .
- B. Plywood Forms: Douglas Fir species; solid one side grade; sound undamaged sheets. Thickness of wood shall be as required to support weight of concrete with minimal deflection.
- C. Steel Forms: Minimum 16 gage (1.5 mm) thick, stiffened to support weight of concrete with minimum deflection.
- D. Tubular Column Type Forms: Round, spirally wound laminated fiber material; inside surface treated with release agent.
- E. Form Ties: Snap-off metal, of fixed length, cone ends.
- F. Reinforcing: 1, 60 ksi (414 MPa) yield grade billet steel deformed bars; uncoated; size and dimensions as indicated on the plans.
- G. Welded Steel Wire Fabric: Plain type, ANSI/ASTM A185; in flat sheets; size and dimensions as indicated on the plans.
- H. Cement: ASTM C150, Type I - Normal.
- I. Fine and Coarse Aggregates: ASTM C33.
- J. Water: Clean and not detrimental to concrete.

2.02 ACCESSORIES

- A. Air Entraining Admixture: ASTM C260.
- B. Chemical Admixture: ASTM C494, Type as required.
- C. Bonding Agent: Polymer resin emulsion manufactured by SPECCO INDUSTRIES, INC., or specifically approved equal.
- D. Vapor Barrier: ASTM C1745, 6 mil (0.15 mm) thick clear polyethylene film.
- E. Non-Shrink Grout: Premixed compound with non-metallic aggregate, cement, water reducing and plasticizing agents; capable of minimum compressive strength of 2400 psi (16.5 MPa) at 48 hours and 7000 psi (48.3 MPa) at 28 days.
- F. Expansion Joints: ASTM C1063; 1/2 inch (13 mm) thick asphalt impregnated fiberboard or felt.
- G. Form Release Agent: Colorless material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete; manufactured by SPECCO INDUSTRIES, INC. or specifically approved equal. Agent shall not be detrimental to the environment.

- H. Sealant: ASTM D1190; hot applied rubber compound manufactured by THE BURKE COMPANY or specifically approved equal.
- I. Absorptive Mat: Burlap-polyethylene, 8 oz/sq yd (270 g/sq m), bonded to prevent separation during use.
- J. Membrane Curing Compound: ASTM C1315, Type 2, Class A.
- K. Clear Sealer: Siloxane type; manufactured by THE BURKE COMPANY or specifically approved equal.

2.03 MIXES

- A. Mix concrete in accordance with ASTM C94, Alternative No. 2, to achieve the following:
 - 1. Compressive Strength (28 day): 4,000 psi
 - 2. Slump:
 - a. 3 +/-1 inches (initial/conventional mix)
 - b. 7 +/-1 inches (final/pump mix)
 - 3. Air Entrainment: 5 ½ +/-1 percent
 - 4. Water/Cement Ratio: 0.50 maximum
 - 5. Large Aggregate: ¾" crushed stone, ASTM C33, No. 67
- B. Use admixtures only when approved by the Engineer.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions prior to commencement of work.
- B. Verify lines, levels, and measurement before proceeding with formwork. Ensure that dimensions agree with the plans.

3.02 PREPARATION

- A. Hand trim sides and bottom of earth forms; remove loose dirt.
- B. Align form joints.
- C. Do not apply form release agent where concrete surfaces are to receive special finishes or applied coatings which may be affected by the agent.
- D. Where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-shrinking grout.
- E. Prepare previously placed concrete by cleaning with steel brush and apply bonding agent in accordance with manufacturer's instructions.

3.03 INSTALLATION

- A. Place, support, and secure reinforcement against displacement at the locations and to the dimensions as indicated on the plans.

- B. Use reinforcing splices at a minimum of locations and only at locations of minimum stress. Review locations of splices with Engineer.
- C. Splice overlap shall be a minimum length of 40 diameters.
- D. Ensure reinforcement, inserts, embedded parts, formed joint fillers, joint devices and waterstops are not disturbed during concrete placement.
- E. Install joint fillers in accordance with manufacturer's instructions.
- F. Extend joint filler from bottom of slab to within 1/2 inch (13 mm) of finished slab surface.
- G. Install joint devices in accordance with manufacturer's instructions.
- H. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.
- I. Place concrete continuously between predetermined expansion, control and construction joints.
- J. Do not interrupt successive placement; do not permit cold joints to occur.

3.04 INSTALLATION - SLABS

- A. Place slabs in checkerboard pattern.
- B. Saw cut control joints at an optimum time after finishing. Cut slabs with 3/16 inch (4.8 mm) thick blade, cutting 1/4 of depth of slab thickness.
- C. Separate slabs on grade from vertical surfaces with joint filler. Extend joint filler from bottom of slab to within 1/4 inch (6 mm) of finished slab surface.
- D. Steel trowel all surfaces except as noted.
- E. Cure floor surfaces in accordance with ASTM C31.
- F. Apply curing compound in accordance with manufacturer's instructions in 2 coats with second coat at right angles to the first.

3.05 TOLERANCES

- A. Equipment Pads: Provide Class B tolerance to floor slabs according to ASTM E1155.

3.06 FIELD QUALITY CONTROL

- A. Field inspection and testing of concrete will be performed under provisions of Section 014500 - QUALITY CONTROL.
- B. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ASTM C31.
- C. Four concrete test cylinders will be taken for every 50 cu yds, or fraction thereof, for each class of concrete placed each day.

- D. One additional test cylinder will be taken during cold weather and be cured on site under same conditions as concrete it represents.
- E. One slump test will be taken for each set of test cylinders taken.

3.07 PROTECTION

- A. Protect finished work until completion of project.
- B. Protect concrete from damage and deformation until project is accepted by the Owner.

3.08 SCHEDULE: CONCRETE FINISHES

- A. Equipment Pads: Broom finish, trim edge.
- B. All Other Finishes: Steel trowel surface, unless otherwise noted.

END OF SECTION 030000

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. Steel framing and supports for applications where framing and supports are not specified on other sections.
 - 2. Aluminum framing and supports for applications where framing and supports are not specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following:
 - 1. 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. Provide templates for anchors and bolts specified for installation under other sections.
 - 2. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by a Qualified Professional Engineer responsible for their preparation.

1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Welding certificates.
- C. Research/Evaluation Reports: For post-installed anchors, from ICC-ES.

1.05 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

1.06 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.
2. Provide allowance for trimming and fitting at the site.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design aluminum fabrications.

2.02 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. Steel Pipe: ASTM A 53/A 53M, Standard Weight (Schedule 40) unless otherwise indicated.

2.03 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners. (ASTM F 1941M)
- B. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
- C. 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 E 488/E 488M, conducted by a qualified independent testing agency.
- D. Post-Installed Anchors: Torque-controlled expansion anchors and/or chemical anchors.
 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).

2.04 MISCELLANEOUS MATERIALS

- A. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.05 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 (1 mm) 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.

2.06 SHELF ANGLES

- A. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.

2.07 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.

2.08 ALUMINUM FINISHES

- A. As-Fabricated Finish: AA-M12 or as selected by the architect from manufacturer's full color range.
- B. Clear Anodic Finish: AAMA 611, Class I, AA-M12C22A41.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 1. 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.
- D. 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, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

END OF SECTION 055050

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. Fasteners.
 - 3. Wood blocking, cants, and nailers.
 - 4. Wood furring and grounds.

1.03 REFERENCES:

- A. ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing; 2019a.
- B. AWWA - (American Wood Preservers Association) C1 - All Timber Products Preservative Treatment by Pressure Process.
- C. APA - American Plywood Association.
- D. AITC - American Institute of Timber Construction.
- E. 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.
- F. 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. 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. Power-driven fasteners.
 4. Powder-actuated fasteners.
 5. Expansion 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.

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. 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.

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 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 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.

2.05 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.

2.06 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.

2.07 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 D3498 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. Place horizontal members flat, crown side up.
- C. Coordinate installation of adjacent construction.
- D. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- E. Do not splice structural members between supports unless otherwise indicated.
- F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
 - 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.
- H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- I. 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".

3.03 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-preservative-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.

END OF SECTION 061000

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, but not limited to, the following:
 - 1. Casings, trims, and chair rails.
 - 2. Wood corner guards.
 - 3. Wainscot wall paneling.
 - 4. Closet shelving and rods.
 - 5. Wood window sills.
 - 6. Wood Picture Frame Molding
 - 7. Decorative Casings
 - 8. Wood Base
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 061000 - Rough Carpentry for furring, blocking, and other carpentry work not exposed to view.
 - 2. Section 064000 - Architectural Woodwork for simulated wood trim, columns, and ornamentation.
 - 3. Section 081429 - Pre-finished Wood Doors for wood doors.
 - 4. Section 083313 - Overhead Coiling Wood Counter Door for coiling wood doors.
 - 5. Section 092116 - Gypsum Board Assemblies for Related Nailers, Furring, and Blocking.
 - 6. Section 099100 - Painting for back priming and finishing of finish carpentry, interior and exterior wood items.

1.03 REFERENCES

- A. Standards: Comply with the following unless otherwise specified or indicated on the Drawings:
 - 1. Lumber: American Softwood Lumber Standard PS 20 by the U.S. Department of Commerce. Comply with applicable provisions for each indicated use.
 - 2. Plywood: Product Standard PS 1 for Softwood Plywood, Construction and Industrial by the U.S. Department of Commerce.
 - 3. Plywood Installation: APA Design/Construction Guide, Residential & Commercial by the American Plywood Association (APA).
 - 4. Grading Rules:
 - a. Douglas Fir, Hem-Fir, Idaho White Pine, and other Western Woods: Western Wood Products Association (WWPA) or West Coast Lumber Inspection Bureau (WCLIB).
 - b. Southern Pine: Southern Pine Inspection Bureau (SPIB).
 - c. Redwood: Redwood Inspection Service (RIS).
 - d. Spruce-Pine-Fir: National Lumber Grades Authority (NLGA).

1.04 SUBMITTALS

- A. Submit following pursuant to Section 013300 - Submittal Procedures.
- B. Submit pursuant to Section 016100 - Product Requirements.

- C. Product Data:
 - 1. Provide where available product data and/or profile sheets of specified wood products.
- D. Samples:
 - 1. Provide three (3) samples for approval of each different style and finish wood product specified. Once approved, two samples shall be stained and finished with required polyurethane for color approval.
- E. Shop Drawings:
 - 1. Provide shop drawings to show termination and transition details for wood wainscot, wood base and/or wood chair rail including but not limited to the following conditions:
 - a. Outside corners.
 - b. Expansion joints.
 - c. Terminations at door frames and window openings.
 - d. Terminations at miscellaneous wall interruptions including but not limited to: electrical devices, fire extinguisher cabinets, mail boxes, display cases and other wall mounted items.
- F. LEED Submittals:
 - 1. Credit MR 7: Certificates of chain-of-custody signed by manufactures certifying that products specified to be made from certified wood were made from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria". Include evidence that mill is certified for chain-of-custody by an FSC-accredited certification body.

1.05 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.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Pursuant to manufacturers published instructions.
- B. Protect against moisture exposure and damage.
- C. Keep lumber, paneling and plywood dry by elevating above dampness, so that air can circulate, and warping will not occur, and by covering with waterproof film that permits circulation of air to all parts of each pile.
- D. Do not stack any finish carpentry materials outside.

1.07 DEFINITIONS

- A. Abbreviations:
 - 1. PPT: Pressure preservative treated.
 - 2. E: Modulus of elasticity.
 - 3. Fb: Extreme fiber stress in bending.
 - 4. RFS: Rough full sawn.
 - 5. S4S: Surfaced four sides.

1.08 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install finish carpentry materials until building is enclosed, wet work is complete, dust creating activities are finished, all walls are prime painted, and HVAC System is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 PRODUCTS

2.01 MOLDING AND TRIM MANUFACTURERS

- A. Baird Brothers Fine Hardwoods, 7060 Croy Road, Canfield, OH 44406. Phone: 800-732-1697. (Basis of Specification where applicable).
- B. Cherokee Wood Products, 1390 East Arrow Highway, Upland, CA 91786. Phone: 909-920-5430.
- C. Cortland Hardwood Products, 124 Pearl Street, Cortland, Ohio 44410. Phone: 330-638-3232.
- D. Erich's Fine Woodworking, Inc., 46 Violet Ave., Poughkeepsie, NY 12601. Phone: 845-229-1201.

2.02 WOOD WINDOW SILLS

- A. Furnish and install oak or hard maple windowsills at all locations shown on the drawings. (Exclude the Apparatus Bay).
 - 1. Sills Greater in width than 8" shall be Kerf cut.
 - 2. All sills shall be stained to match wood doors and finished with three (3) coats of polyurethane.
 - 3. Quality: Clear - (3% Maximum moisture content)
 - 4. Oak Color: White.

2.03 CHAIR RAIL

- A. Furnish and install hard maple chair rail in Room(s) _____.
 - 1. Size: 3/4" x 4".
 - 2. Profile: Baird Brothers SPL 422
 - 3. All chair rails shall be stained to match wood doors and finished with three (3) coats of polyurethane.
 - 4. Quality: Clear - (3% Maximum moisture content)
 - 5. Provide continuous solid blocking in wall and attach chair rail at 8" o.c. minimum.

2.04 WINDOW CASING

- A. Hard Maple Window Casing:
 - 1. Size: 3/4" x 4".
 - 2. Profile: Baird Brothers B108 O.G. Casing
 - 3. All window casing shall be stained to match wood doors and finished with three (3) coats of polyurethane.
 - 4. Quality: Clear - (3% Maximum moisture content)
 - 5. Provide continuous solid blocking in wall and attach casing at 8" o.c. minimum.

2.05 WAINSCOT WALL SYSTEM

- A. Furnish and install Hard Maple wainscot wall system.
 - 1. Wainscot 3/8" x 2-7/8" tongue and groove Hard Maple Baird Brothers Profile B608
 - 2. Base Rail and Shoe - 13/16" x 7-1/2" Hard Maple Base Baird Brothers Profile SPL 249 with 5/8" hard maple quarter round shoe.
 - 3. Top Rail Cap - 1-3/8" x 1-3/4" Hard Maple Chair Rail Wainscot Cap
 - 4. Wainscot Wall System shall be stained to match wood doors and finished with three (3) coats of polyurethane.
 - 5. Provide continuous solid blocking at Top and Bottom Rail and attach rails and wainscot at 8" o.c. minimum.

2.06 WOOD BASE

- A. Wood Base and Shoe:
 - 1. Size 13/16" x 7-1/2" Hard Maple Base Baird Brothers Profile SPL 249 with 5/8" hard maple quarter round shoe.
 - 2. All wood base shall be stained to match wood doors and finished with three (3) coats of polyurethane.
 - 3. Quality: Clear - (3% Maximum moisture content)
 - 4. Provide continuous solid blocking in wall and attach base at 8" o.c. minimum.

2.07 CLOSETS

- A. Unless otherwise indicated, every closet shall have a fully secured 5/4" thick wood shelf and full-length closet rod.
 - 1. Shelf shall be primed and painted two coats.
 - 2. Refer to Section 102813 - Toilet and Miscellaneous Accessories for closet rod.

2.08 DECORATIVE CASINGS

- A. Furnish and install poplar, fluted casings at all locations shown on the drawings.
 - 1. Size: 3/4" x 5-1/2".
 - 2. Style: CA 325 by White River Hardwoods, Woodworks, Inc. or Architect approved equivalent.
 - 3. Material: Poplar
 - 4. Finish: Painted with accent color.
 - 5. Provide continuous solid blocking in wall and attach casings at 8" o.c. minimum.
- B. Furnish and install poplar corner medallions at all locations shown on Drawings.
 - 1. Size: 1" x 6" x 6" (all actual dimensions)
 - 2. Style: As shown on Drawings.
 - 3. Material: Poplar
 - 4. Finish: Painted with accent color
 - 5. Provide continuous solid blocking in wall and attach casings at 8" o.c. minimum.

2.09 PICTURE RAIL

- A. Furnish and install Hard Maple picture frame molding at all locations shown on the drawings.
 - 1. Baird Brothers 1-1/16" x 1-1/2" Hard Maple picture frame molding (B054).

2. All picture frame molding shall be stained to match wood doors and finished with three (3) coats of polyurethane.
3. Quality: Clear - (3% Maximum moisture content)
4. Provide continuous solid blocking in wall and attach picture rail molding at 8" o.c. minimum.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Before installing finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 72 hours, unless longer conditioning is recommended by manufacturer.
- C. Prime lumber for applications to be painted and/or stained, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Division 09 Section - "Painting."

3.03 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
 3. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
 4. At window openings wood wainscot shall terminate flush with the GWB return and top rail mitered at termination to return to wall.
 5. No unfinished edges or end are allowed in Finish Carpentry or Finish Carpentry systems.
 6. All wood joints shall be mitered.
 7. Coordinate finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate finish carpentry.

3.04 STANDING AND RUNNING TRIM INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use

scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.

1. Match color and grain pattern across joints.
2. Install trim after gypsum board joint finishing operations are completed and all surfaces have received paint primer at a minimum.
3. Drill pilot holes in hardwood before fastening to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads on exposed carpentry work and fill holes.
4. Fit exterior joints to exclude water. Apply flat grain lumber with bark side exposed to weather.

3.05 PANELING INSTALLATION

- A. Plywood Paneling: Select and arrange panels on each wall to minimize noticeable variations in grain character and color between adjacent panels. Leave $\frac{1}{4}$ gap to be covered with trim at top, bottom, and openings. Install with uniform tight joints between panels.
1. Attach panels to supports with manufacturer's recommended panel adhesive and fasteners. Space fasteners as recommended by panel manufacturer.
 2. Conceal fasteners to greatest practical extent.
 3. Arrange panels with grooves and joints over supports. Fasten to supports with nails of type and at spacing recommended by panel manufacturer. Use fasteners with pre-finished heads matching groove or panel color.
 4. At vertical joints in wainscot paneling, paint a one-inch wide strip on the GWB substrate to match the paneling.

3.06 ADJUSTING

- A. Replace finish carpentry that is damaged or does not comply with requirements. Finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.07 CLEANING

- A. Clean finish carpentry on exposed and semi-exposed surfaces. Touch up finishes to restore damaged or soiled areas.

END OF SECTION 062000

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

PENETRATION FIRESTOPPING
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

- 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 078413

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. Silicone joint sealants.
 - 2. Polyurethane joint sealants.
 - 3. Latex joint sealants.
 - 4. Preformed joint sealants.
 - 5. Acoustical joint sealants.

1.03 PRECONSTRUCTION TESTING

- A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use ASTM C1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Samples for Verification: For each type of sealant submit a color sample board and one sample joint, 1/2" wide by 6" long including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

1.04 ACTION SUBMITTALS

- A. See Section 013300 - SUBMITTALS, for Submittal Procedures.
- B. LEED Data Submissions: See Section 018113 - SUSTAINABILITY DESIGN REQUIREMENTS for required submittals.
- C. Product Data: For each joint-sealant product indicated.
- D. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- E. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.05 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and testing agency.
- B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- D. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- E. Warranties: Sample of special warranties.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project with a minimum of three-years experience in the installation of the work of this section.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- C. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.
 - 2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
- D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.07 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 degrees F.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.08 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 - 1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 - 3. Mechanical damage caused by individuals, tools, or other outside agents.
 - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Liquid-Applied Joint Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- D. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C1248 and have not stained porous joint substrates indicated for Project.
- E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

- F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full color range.
- G. Sealant Abbreviations:
 - 1. Use NT = Non-Traffic
 - 2. Use T = Traffic
 - 3. LM = Low Modulus
 - 4. Type S = Single Component
 - 5. Type M = Multi-component
 - 6. Grade NS = Non-Sag
 - 7. Grade P = Pourable
 - 8. Grade SL = Self-Leveling
 - 9. Use (related to Material)
 - 10. Use M = Mortar Contact
 - 11. Use G = Glass Contact
 - 12. Use A = Aluminum Contact
 - 13. Use O = Other Materials

2.02 SILICONE JOINT SEALANTS

- A. Single-Component, Non-sag, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, for 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; DOWSIL 790.
 - b. GE Advanced Materials - Silicones; SCS2000 SilPruf LM.
 - c. Pecora Corporation; 301 NS
 - d. Sika Corporation, Construction Products Division; SikaSil-WS 290
 - e. Tremco Incorporated; Spectrem 1.
- B. Single-Component, Non-sag, Traffic-Grade, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, for Use T.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Pecora Corporation; 311 NS.
 - b. Sika Corporation, Construction Products Division; SilkaSil-728 NS.
 - c. Tremco Incorporated; Spectrem 800.
- C. Single-Component, Pourable, Traffic-Grade, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade P, Class 100/50, for Use T.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Corning Corporation; 890-SL.
 - b. Pecora Corporation; 310 SL.
 - c. Sika Corporation, Construction Products Division; SilkaSil-728 SL.
 - d. Tremco Incorporated; Spectrem 900 SL.
- D. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, for Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Tremco Incorporated; Tremsil 200.
 - b. Pecora Corporation; 898 NST.
 - c. GE Advanced Materials; SCS1700 Sanitary.

2.03 POLYURETHANE JOINT SEALANTS

- A. Single-Component, Non-sag, Polyurethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, for Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Sika Corporation, Construction Products Division; Sikaflex - 15LM.
 - b. Pecora Corporation; Dynatrol I-XL.
 - c. Tremco Incorporated; Dymonic 100.

- B. Single-Component, Nonsag, Traffic-Grade, Polyurethane Joint Sealant: ASTM C920. Type S, Grade NS, Class 25, for Use T.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Masterseal NP1.
 - b. Sika Corporation, Construction Products Division; Sikaflex - 1a.
 - c. Tremco Incorporated; Dymonic 100.

- C. Single-Component, Pourable, Traffic-Grade, Polyurethane Joint Sealant: ASTM C920, Type S, Grade P, Class 25, for Use T.
 - 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. BASF Building Systems; MasterSeal SL 1.
 - b. Pecora Corporation; Urexpan NR-201.
 - c. Sherwin-Williams Company, Loxon SL1 Self-Leveling.
 - d. Sika Corporation. Construction Products Division; Sikaflex - 1CSL.
 - e. Tremco Incorporated; Vulkem 45 SSL.

- D. Immersible Multicomponent, Nonsag, Traffic-Grade, Polyurethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, for Uses T and I.
 - 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. Sika Corporation, Construction Products Division, Sikaflex - 2c NS EZ
 - b. BASF Building Systems; MasterSeal NP 2.
 - c. Pecora Corporation; Dynatred.
 - d. Tremco Incorporated; Dymeric 240 FC.

2.04 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.
 - 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. BASF Building Systems; MasterSeal NP 520.
 - b. GE Advanced Materials; Ultra Seal.
 - c. Pecora Corporation; AC-20+.
 - d. Tremco Incorporated; Tremflex 834.
 - e. Sherwin Williams Company (SherMax Urethanized Elastomeric Sealant).

2.05 PREFORMED JOINT SEALANTS

- A. Preformed Foam Joint Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant manufactured from Polyurethane foam with minimum density of 10 lb/cu. ft. (160 kg/cu. m) and impregnated with a nondrying, water-repellent agent. Factory produce in

precompressed sizes in roll or stick form to fit joint widths indicated; coated on one side with a pressure-sensitive adhesive and covered with protective wrapping.

1. Products: Subject to compliance with requirements, provide the following:
 - a. Tremco Incorporated; Spectrum SimpleSeal.
 - b. Tremco Incorporated; Illmod 600
 - c. Emseal Joint Systems, Ltd.; 25V.
 - d. Schul International Company; Sealtite Standard.

2.06 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Joint Sealant: Manufacturer's standard non-sag, paintable, non-staining 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. Pecora Corporation; AC-20 FTR.
 - b. Sherwin-Williams Company, Sher-Max Urethanized Elastomeric Sealant
 - c. Tremco Incorporated; Tremflex 834, Acoustical/Curtain Wall Sealant
 - d. USG Corporation; SHEETROCK Acoustical Sealant.

2.07 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.08 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C1193, unless otherwise indicated.
 - 4. Provide flush joint profile where indicated per Figure 8B in ASTM C1193.
 - 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
- G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations and at perimeters of acoustical Panel edge channels of Acoustical Panel Ceiling systems. 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.

3.04 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 1 test for each 500 feet of joint length thereafter or 1 test per each floor per elevation.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - 3. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.

- b. Whether sealant dimensions and configurations comply with specified requirements.
 - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
 5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.05 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.06 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.07 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
 1. Joint Locations:
 - a. Control and expansion joints in paver and pavement installations.
 - b. Isolation and contraction joints in cast-in-place concrete slabs.
 - c. Tile control and expansion joints.
 2. Silicone Joint Sealant: Single component, non-sag, traffic grade, neutral curing.
 3. Polyurethane Joint Sealant: Single component, non-sag, traffic grade Single component, pourable, traffic grade.
 4. Preformed Joint Sealant: Preformed foam sealant.
 5. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion.
 1. Joint Locations:
 - a. Joints in pedestrian plazas.
 2. Polyurethane Joint Sealant: Immersible, multicomponent, non-sag, traffic grade.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- C. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces.
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Joints in dimension stone cladding.
 - d. Joints between metal panels.
 - e. Joints between different materials listed above.
 - f. Perimeter joints between materials listed above and frames of doors windows and louvers.
 - g. Control and expansion joints in ceilings and other overhead surfaces.
 - 2. Silicone Joint Sealant: Single component, non-sag, neutral curing, Class 100/50.
 - 3. Polyurethane Joint Sealant: Single component, non-sag, Class 100/50.
 - 4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- D. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in tile flooring.
 - 2. Polyurethane Joint Sealant: Single component, non-sag, traffic grade.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- E. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces.
 - 1. Joint Locations:
 - a. Perimeter joints of exterior openings where indicated.
 - b. Tile control and expansion joints.
 - c. Vertical joints on exposed surfaces of walls and partitions.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
 - 2. Joint Sealant: Latex Acrylic based.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- F. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces.
 - 1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - 2. Joint Sealant: Mildew resistant, single component, non-sag, neutral curing, Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- G. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal non-traffic surfaces.
 - 1. Joint Location:
 - a. Acoustical joints where indicated.
 - b. Other joints as indicated.
 - 2. Joint Sealant: Acoustical joint sealant.

3.08 SEALANT INSTALLATION LOG

- A. A tabular log of all sealant installations on the project shall be kept and submitted with the O & M manuals at the completion of the project.

JOINT SEALANTS
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

- B. Tabular log shall have columns for:
 - 1. Sealant type
 - 2. Sealant installation location
 - 3. Temperature during installation
 - 4. Date of Installation
 - 5. Manufacturer
 - 6. Sealant color installed.

END OF SECTION 079200

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. Access doors and frames for walls and ceilings.
 - 2. Fire-resistive rated access door and frame units for wall and ceilings.

1.03 REFERENCES

- A. ASTM E 152 - Standard Methods of Fire Tests of Door Assemblies
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
- C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- D. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2018.
- E. NFPA 288 - Standard Methods of Fire Tests of Horizontal Fire Door Assemblies Installed in Horizontal Fire Resistance-Rated Assemblies; 2022.
- F. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.
- G. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Section 013300 - SUBMITTALS: Procedure for submittals.
- B. Shop drawings: Fully describe and locate all items being furnished and include large scale details of principal construction features and internal reinforcement. Indicate dimensions, elevations, hardware, reinforcement, anchor types and spacing, and finishes.
- C. Product Data: Indicate door and frame configuration and finishes with manufacturer's standard details and catalog data demonstrating compliance with referenced standards
- D. Samples: For each door face material, at least 3 by 5 inches (75 by 125 mm) in size, in specified finish.
- E. Product Schedule: Provide complete access door and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

1.05 QUALITY ASSURANCE

- A. Manufacturer: Minimum five years documented experience producing products specified in this section.

- B. Installer: Minimum five years documented experience installing products specified in this section.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics according to the following test method and that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 1. NFPA 252 or UL 10B for fire-rated access door assemblies installed vertically.
 2. NFPA 288 for fire-rated access door assemblies installed horizontally.

2.02 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or comparable product by one of the following:
 1. Acudor Products, Inc.
 2. J. L. Industries, Inc.; Div. of Activar Construction Products Group.
 3. Karp Associates, Inc.
 4. Milcor Inc.
 5. Nystrom, Inc.
- B. Source Limitations: Obtain each type of access door and frame from single source from single manufacturer.
- C. Flush Access Doors with Exposed Flanges:
 1. Assembly Description: Fabricate door to fit flush to frame. Provide manufacturer's standard-width exposed flange, proportional to door size.
 2. Locations: Wall and ceiling.
 3. Metallic-Coated Steel Sheet for Door: 0.070 inch, 14 gauge steel sheet thickness for Fire-rated access doors and 20 gauge (0.0359 inch) single thickness steel sheet for non-fire rated access doors.
 - a. Finish: Factory prime
 4. Hinges: 175 degree stainless steel piano hinge concealed constant force closure spring type.
 5. Hardware: Self latching, key operated.
- D. Flush Access Doors with Concealed Flanges:
 1. Assembly Description: Fabricate door to fit flush to frame. Provide frame with gypsum board beads for concealed flange installation.
 2. Locations: Wall and ceiling .
 3. Uncoated Steel Sheet for Door: Nominal 0.060 inch (1.52 mm), 16 gage
 - a. Finish: Factory prime.
- E. Fire-Rated, Flush Access Doors with Concealed Flanges
 1. Assembly Description: Fabricate door to fit flush to frame, with a core of mineral-fiber insulation enclosed in sheet metal. Provide self-latching door with automatic closer and interior latch release. Provide frame with gypsum board beads for concealed flange installation.

2. Locations: Wall and ceiling.
 3. Fire-Resistance Rating: Not less than that of adjacent construction.
 4. Metallic-Coated Steel Sheet for Door: Nominal 0.040 inch (1.02 mm), 20 gage.
 - a. Finish: Factory prime.
- F. Hardware:
1. Latch: Self-latching bolt operated by flush key with interior release or as indicated for each door.
- G. Locks:
1. Cylinder locks keyed alike for each door panel. Provide 2 keys per access panel. Coordinate locks and keying with the Owner's requirements and existing keying system(s) where applicable.

2.03 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Stainless Steel: Type 304, brushed #4 finish.
- C. Frame Anchors: Same type as door face.
- D. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A153/A153M or ASTM F 2329. At stainless steel doors, provide stainless steel fasteners.

2.04 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of supports indicated.
 1. For concealed flanges with drywall bead, provide edge trim for gypsum board securely attached to perimeter of frames.
 2. Provide mounting holes in frames for attachment of units to metal or wood framing.
 3. Provide mounting holes in frame for attachment of masonry anchors.

2.05 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

- D. Steel and Metallic-Coated-Steel Finishes:
 - 1. Factory Prime: Apply manufacturer's standard, fast-curing, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Verify that field measurements, surfaces, substrates and project conditions are as required and suitable for installation. Verify that rough openings for door and frame are correctly sized and located. Do not proceed with installation until unsatisfactory conditions have been corrected.
- C. Install doors flush with adjacent finish surfaces or recessed to receive finish material.
- D. Secure rigidly in place.
- E. Position unit to provide convenient access to concealed work requiring access.

3.03 ADJUSTING

- A. Adjust doors and hardware, after installation, for proper operation.
- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 083113

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. Storefront framing.
 2. Interior borrowed lites.
 3. 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.

- 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; 12 inches (300 mm) square.
 - 1. Fire-resistive glazing products.
 - 2. 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.

- D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 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., 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 channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or 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. Windborne-Debris-Impact Resistance: Provide exterior glazing that passes enhanced-protection testing requirements in ASTM E 1996 for Wind Zone 1 when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on the Project and shall be installed in same manner as glazing indicated for use on the Project.
 1. Large-Missile Test: For all glazing, regardless of height above grade.

- D. 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.
 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. Ceramic-Coated Spandrel Glass: ASTM C 1048, 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: SolarBronze
 3. Ceramic Coating Color: Match.

2.03 LAMINATED GLASS

- A. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
1. Construction: Laminate glass with polyvinyl butyral interlayer 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. Windborne-Debris-Impact-Resistant Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, with "Windborne-Debris-Impact Resistance" Paragraph in "Glass Products, General" Article, 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 the following to comply with interlayer manufacturer's written recommendations:
 - a. Polyvinyl butyral interlayer.
 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 3. Interlayer Color: Clear unless otherwise indicated.
- C. 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 E 2190, 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 C 920, 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 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 INTERIOR LAMINATED-GLASS TYPES

- A. Glass Type LG1: Solar Bronze Spandrel laminated glass with two plies of fully tempered float glass with etched surface pattern..
 - 1. Thickness of Each Glass Ply: 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.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. 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.

- 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.

- 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 088000

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. Fixed louvers, frames and accessories.

1.03 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.
- B. Horizontal Louver: Louver with horizontal blades (i.e., the axis of the blades are horizontal).
- C. Vertical Louver: Louver with vertical blades (i.e., the axis of the blades are vertical).
- D. Drainable-Blade Louver ASTM E330/E330M: Louver with blades having gutters that collect water and drain it to channels in jambs and mullions, which carry it to bottom of unit and away from opening.
- E. Wind-Driven-Rain-Resistant Louver: Louver that provides specified wind-driven rain performance, as determined by testing according to AMCA 500-L.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.
- B. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.
 - 1. Show weep paths, gaskets, flashing, sealant, and other means of preventing water intrusion.
 - 2. Show mullion profiles and locations.
- C. Samples: For each type of metal finish required.
- D. Delegated-Design Submittal: For louvers indicated to comply with structural and seismic performance requirements, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.05 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Based on evaluation of comprehensive tests performed according to AMCA 500-L by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for each type of louver and showing compliance with performance requirements
- B. Windborne-debris-impact-resistance test reports.

1.06 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

1.07 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Source Limitations: Obtain louvers from single source from a single manufacturer where indicated to be of same type, design, or factory-applied color finish.

2.02 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design louvers, including comprehensive engineering analysis by a qualified professional engineer, using structural and seismic performance requirements and design criteria indicated.
- B. Structural Performance: Louvers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures shall be considered to act normal to the face of the building.
 - 1. Wind Loads: Determine loads based on pressures as indicated on Drawings.
 - 2. Wind Loads: Determine loads based on a uniform pressure of 30 lbf/sq. ft. (1436 Pa), acting inward or outward.
- C. Windborne-Debris-Impact Resistance: Louvers located within 30 feet (9.1 m) of grade shall pass enhanced-protection, large-missile testing requirements in ASTM E1996 for Wind Zone 3 when tested according to ASTM E1886. Test specimens shall be no smaller in width and length than louvers indicated for use on Project.
- D. Seismic Performance: Louvers, including attachments to other construction, shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- E. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.
- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
- G. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

2.03 FIXED, EXTRUDED-ALUMINUM LOUVERS

- A. Horizontal, Wind-Driven-Rain-Resistant Louver:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Airolite Company, LLC (The):
 - b. Arrow United Industries; a division of Mestek, Inc
 - c. Construction Specialties, Inc
 - d. Greenheck Fan Corporation
 - e. Nystrom, Inc.
 - f. Ruskin Company; Tomkins PLC.
 - 2. Louver Depth: 4 inches (K6744X).
 - 3. Blade Angle: 35 degrees.
 - 4. Drainable Blades (ASTM E330/E330M)
 - 5. Frame and Blade Nominal Thickness: Not less than 0.081 inch.
 - 6. Louver Performance Ratings:
 - a. Free Area: Not less than 8.92 (K6744X) [sq. ft. for 48-inch wide by 48-inch high louver.
 - b. Air Performance: Not more than 0.10-inch wg static pressure drop at 800-fpm free-area intake velocity.
 - c. Wind-Driven Rain Performance: Not less than 95 percent effectiveness when subjected to a rainfall rate of 8 inches per hour and a wind speed of 50 mph at a core-area intake velocity of 989 fpm (K6744X).
 - d. Maximum Qualified Wind design Load: +/- 200 PSF
 - 7. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

2.04 LOUVER SCREENS

- A. General: Provide screen as manufactured by the Louver manufacturer on the interior face of each exterior louver.
 - 1. Screen Location for Fixed Louvers: Interior face.
 - 2. Screening Type: Provide and install Bird screening except where Insect screening is indicated.
- B. Secure screen frames to louver frames with stainless-steel machine screws, spaced a maximum of 6 inches from each corner and at 12 inches o.c.
- C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.
 - 1. Metal: Same type and form of metal as indicated for louver to which screens are attached. Reinforce extruded-aluminum screen frames at corners with clips.
 - 2. Finish: Same finish as louver frames to which louver screens are attached.
 - 3. Type: Rewirable frames with a driven spline or insert.
- D. Louver Screening for Aluminum Louvers:
 - 1. Insect Screening: Stainless steel, 18 by 18 mesh, 0.009-inch wire.

2.05 MATERIALS

- A. Aluminum Extrusions: ASTM B221 (ASTM B221M), Alloy 6063-T5, T-52, or T6.
- B. Fasteners: Use types and sizes to suit unit installation conditions.

1. Use tamper-resistant screws for exposed fasteners unless otherwise indicated.
 2. For fastening aluminum, use aluminum or 300 series stainless-steel fasteners.
 3. For color-finished louvers, use fasteners with heads that match color of louvers.
- C. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, made from stainless-steel components, with capability to sustain, without failure, a load equal to 4 times the loads imposed, for concrete, or 6 times the load imposed for masonry, as determined by testing according to ASTM E488/E488M, conducted by a qualified independent testing agency.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.06 FABRICATION

- A. Factory assemble louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Vertical Assemblies: Where height of louver units exceeds fabrication and handling limitations, fabricate units to permit field-bolted assembly with close-fitting joints in jambs and mullions, reinforced with splice plates.
1. Continuous Vertical Assemblies: Fabricate units without interrupting blade-spacing pattern unless horizontal mullions are indicated.
 2. Horizontal Mullions: Provide horizontal mullions at joints where indicated.
- C. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- D. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
1. Frame Type: Channel unless otherwise indicated.
- E. Include supports, anchorages, and accessories required for complete assembly.
- F. Provide vertical mullions of type and at spacings indicated, but not more than is recommended by manufacturer, or 72 inches o.c., whichever is less.
1. Exposed Mullions: Where indicated, provide units with exposed mullions of same width and depth as louver frame. Where length of louver exceeds fabrication and handling limitations, provide interlocking split mullions designed to permit expansion and contraction.
 2. Exterior Corners: Prefabricated corner units with mitered and welded blades and with mullions at corners.
- G. Provide subsills made of same material as louvers or extended sills for recessed louvers.
- H. Join frame members to each other and to fixed louver blades with fillet welds concealed from view unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.07 ALUMINUM FINISHES

- A. Finish louvers after assembly.

- B. High-Performance Organic Finish: Three-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: Custom Color to match existing.
- C. Class I, Color Anodic Finish: AA-M12C22A42/A44 complying with AAMA 611.
 - 1. Mechanical Finish: Nonspecular as fabricated.
 - 2. Chemical Finish: Etched, medium matte.
 - 3. Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker. Color to fall in standard range for color variation in anodic finishes.
 - 4. Color: []Custom color to match existing.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.03 INSTALLATION

- A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Protect unpainted galvanized and nonferrous-metal surfaces that are in contact with concrete, masonry, or dissimilar metals from corrosion and galvanic action by applying a heavy coating of bituminous paint or by separating surfaces with waterproof gaskets or nonmetallic flashing.
- F. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Section 079200 - JOINT SEALANTS for sealants applied during louver installation.

3.04 ADJUSTING AND CLEANING

- A. Clean exposed louver surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvers damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 089119

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. Non-load-bearing steel framing systems for interior gypsum board assemblies.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. 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 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 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C645 requirements for metal unless otherwise indicated.
 - 2. See "Corrosion Protection of Steel Framing" Article in the Evaluations for a discussion of corrosion-resistant coatings on components.
 - 3. Protective Coating: ASTM A653/A653M, G60 (Z180), hot-dip galvanized unless otherwise indicated.
- B. Studs and Runners: ASTM C645. Use either steel studs and runners or dimpled steel studs and runners.
 - 1. Steel Studs and Runners:
 - a. Minimum Base-Metal Thickness: 18 gauge (0.043 inch) and 20 gauge (0.033 inch) as indicated on the drawings.
 - b. Depth: 4 inches, 3-5/8 inches, 2-1/2 inches, 1-5/8 inches as indicated on the drawings.
 - 2. Dimpled Steel Studs and Runners:
 - a. Minimum Base-Metal Thickness: 20 gauge (0.027 inch).
- C. Slip-Type Head Joints: Where indicated, provide one of the following:
 - 1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Products: Subject to compliance with requirements, provide one of the following:

- 1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.
- 2) Steel Network Inc. (The); VertiTrack VTD Series.
- 3) Marino/Ware; Slotted Track SLT

- D. 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.

2.03 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Metal Framing: Type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
1. Asphalt-Saturated Organic Felt: ASTM D226/D226M, Type I (No. 15 asphalt felt), non-perforated.
 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.03 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.

1. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment, services, heavy trim, grab bars, toilet accessories, and furnishings or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.04 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 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.
 3. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 092216

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. Trim and Accessories.
 4. Joint treatment, tapes, compounds and finishing.
 5. Miscellaneous metal framing, furring, and fasteners.
 6. All related items necessary to complete the work of this section.

1.03 SUBMITTALS

- A. Product Data: For each type of product.

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).

2.04 SPECIALTY GYPSUM BOARD

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. Trim: 1/16 inch thick extruded aluminum 6063-T5 mill finish manufactured by Gordon Inc., (unless noted otherwise), Fry Reglet or Architect approved equivalent:
 - a. J-Trim: Model JD-58 (5/8 inch gypsum board).
 - b. Drywall Reveal Trim: Model DRM-625-625 (5/8 inch deep by 5/8 inch wide) with DRM-SNAP-IN-50 (fits 625 profiles)
 - c. Wallcovering Outside Corner: WCTOSC
 - d. 3-Step Outside Corner: Model 902-3X-625 (5/8 inch gypsum - 5/8 inch gypsum).

- e. Drywall Control Joints: Model DRM-50-25 2-PC unless indicated otherwise on the drawings.
3. 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.

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.

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. Type X: As indicated on Drawings.
 - 2. Ceiling 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.

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. Neatly cut all openings so that they may be covered by plates and escutcheons.
- E. 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 092900

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 with accessories and trims for ceilings.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices.
- C. Seamless Acoustical Ceiling Panels.
- D. Exposed Grid Suspension Systems - 15/16 inch
- E. Acoustical Sealants.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. LEED Submittals:
 - 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
 - 2. Product Data for Credit EQ 4.1: For sealants, documentation including printed statement of VOC content.
 - 3. Laboratory Test Reports for Credit EQ 4: For ceiling systems and sealants, documentation indicating that products 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."
- C. Samples: For each exposed product and for each color and texture specified, 6 inches (150 mm) in size.

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.

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.

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 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

- A. Basis-of-Design Product Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Certainteed, Inc.: Symphony m 1222-75-1 .
 - 2. or Architect approved equivalent.
- 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: White.
- D. LR: Not less than 0.83.
- E. NRC: Not less than 0.75.
- F. CAC: Not less than 35.

- G. Edge/Joint Detail: Square Lay-in.
- H. Thickness: 7/8 inch.
- I. Modular Size: 24 by 24 inches (610 by 610 mm).

2.04 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.

2.05 METAL SUSPENSION SYSTEM - 15/16 GRID

- 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.: 15/16 Co-extruded CLEAN ROOM.
 2. CertainTeed Corp.
 3. Chicago Metallic Corporation.
- B. Wide-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 A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 15/16-inch (24 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. Grid and Cap Material: Hot-dip galvanized steel with Aluminum cap.
 5. Cap Finish:
 - a. White for acoustical panel installations.
 - b. Color as selected by the Architect for the 360 Painted Grid system.
- C. Suspended Ceiling Grid Moldings: StyleStix™ - Rigid PVC; Sag, mold, mildew and bacteria resistant; snap-on grid and perimeter moldings (Items #1310, 1311 and 1312) in lengths required. System connects to a standard 15/16" grid suspension system with wall molding profile. The StyleStix system shall have the following physical characteristics:
1. Dimensions: 1 1/2 inch wide x 3/4 inch deep x 72 inch long (#1310)
 2. Sag Resistance: HumiGuard Plus.
 3. Fire Rating: Class A
 4. Anti-microbial: Mold, Mildew and Bacteria resistant
 5. Durability: Soil, scratch and impact resistant
 6. Material: PVC
 7. Finish: White, paintable surface.
 8. Warranty: Limited Lifetime manufacturer's warranty.

2.06 METAL EDGE MOLDINGS AND TRIM

- 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. 15/16 inch edge Angles, Moldings and Trims compatible with the grid specified. Provide gasketed CLEAN ROOM Edge Moldings and Trim where CLEAN ROOM grids are specified.
 2. Chicago Metallic Corporation.
 3. USG Interiors, Inc.; Subsidiary of USG Corporation.
- B. 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.

- C. Extruded Aluminum, Sheet-Metal Edge Moldings and Trim: Axiom Trim type and profile indicated.

2.07 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 C834 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 095113

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.

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. Architect approved equivalent.
- B. Product Standard: ASTM F1861, Type TS (Thermoset Vulcanized Rubber).
 - 1. Group: 1 (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. 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.
- E. Height: 4 inches or as indicated on Drawings.
- F. Lengths: 120-foot Coils or in manufacturer's standard coil length.
- G. Outside Corners: Preformed.
- H. Inside Corners: Preformed.
- I. Colors: As selected by Architect from manufacturer's full range of colors.

2.02 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.

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 096513

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 REFERENCES

- A. GreenSeal GS-11 - Standard for Paints, Coatings, Stains, and Sealers; 2021.
- B. SSPC-PA 1 - Shop, Field, and Maintenance Coating of Metals; 2016.
- C. SSPC-SP 11 - Power-Tool Cleaning to Bare Metal; 2020.
- D. SSPC-SP 13 - Surface Preparation of Concrete; 2018.
- E. SSPC-SP 2 - Hand Tool Cleaning; 2018.
- F. SSPC-SP 3 - Power Tool Cleaning; 2018.

- G. SSPC-SP 7 - Brush-Off Blast Cleaning; 2007.
- H. GreenSeal GS-11 GreenSeal GS-11; Latest Version.
- I. US Green Building Council, (USGBC) - Green Seal standards for LEED paint credits. USGBC LEED v4.1-BD+C
- J. Occupational Safety and Health Act (OSHA) - Safety Standards.
- K. American National Standards Institute (ANSI) - Performance Standards.
- L. Paint Decorating Contractors of America (PDCA) - Application Standard.
- M. National Paint and Coatings Association (NPCA) - Gloss Standard.
- N. American Society for Testing Materials (ASTM) - Testing Methods.
- O. Master Paint Institute (MPI #) - Established paint categories and standards.
- P. Ozone Transmission Commission (OTC) - Established levels of Volatile Organic Compounds. OTC II.
- Q. SCAQMD 1168 - South Coast Air Quality Management District Rule #1168 with latest amendments.
- R. SSPC V1 (PM1) - Steel Structures Painting Manual, Vol. 1, Good Painting Practice; Society for Protective Coatings.
- S. SSPC V2 (PM2) - Steel Structures Painting Manual, Vol. 2, Systems and Specifications; Society for Protective Coatings.
- T. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

1.05 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Manufacturer's name, product name and/or catalog number, and general product category.
 - 2. Cross-reference to specified paint system(s) that the product is to be used in; include description of each system.
- B. Submit 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. VOC content.
- C. Samples: Submit three paper samples, 5 inches by 7 inches (127mm x 178mm) in size, illustrating selected colors for each color and system selected with specified coats cascaded.

- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.
- F. LEED Certification Product Data:
 - 1. See Section 0013516 - Alteration Project Procedures.
 - 2. Submittals Required:
 - a. MRc3 Resource Reuse (LEED Form).
 - b. MRc4 Recycled Content (LEED Form).
 - c. MRc5 Local and Regional Materials (LEED Form).
 - d. EQc4.2 Low Emitting Materials - Paint (VOC Certification Letter).

1.06 CLOSEOUT SUBMITTALS

- A. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as "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 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.

1.08 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
- B. Installer Qualifications: All products listed in this section are to be applied by a Painting Contractor with a minimum of five years demonstrated experience in surface preparation and field application of the same type and scope as specified.
- C. 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.
 - b. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 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.

1.09 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.
- C. Disposal:
 1. Never pour leftover coating down any sink or drain. Use up material on the job or seal can and store safely for future use.
 2. Do not incinerate closed containers.
 3. For specific disposal or recycle guidelines, contact the local waste management agency or district. Recycle whenever possible.

1.10 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.

1.11 WARRANTY

- A. Inspection of all surfaces to be coated must be done by the manufacturer's representative to insure proper preparation prior to application. All thinners, fillers, primers and finish coatings shall be from the same manufacturer to support a product warranty. Products other than those submitted shall be accompanied by a letter stating its fitness for use and compatibility.
- B. At project closeout, provide to the Owner or owner's representative an executed copy of the Manufacturer's standard form outlining the terms and conditions of and any exclusions to their Limited Warranty against Manufacturing Defect.

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. (Basis of Design)
 - a. Benjamin Moore & Co. (United States), which is located at: 101 Paragon Dr; Montvale, NJ 07645; Toll Free Tel: 866-708-9181; Email: info@benjaminmoore.com; Web: <https://www.benjaminmoore.com> | <https://www.benjaminmoore.com/en-ca>
 2. Sherwin-Williams Company.
 3. PPG Architectural Finishes, Inc.

2.02 PAINT, GENERAL

- A. 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.
- B. VOC Content: Products shall comply with VOC limits of authorities (OTC II) 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. Non-Flat Paints and Coatings: | 100 g/L. |
| 3. Non-Flat High Gloss | 150 g/L |
| 4. Dry-Fog Coatings: | 150 g/L. |
| 5. Primers, Sealers, and Undercoaters: | 100 g/L. |
| 6. Quick Dry Enamel | 150 g/L. |
| 7. Anti-corrosive and Antirust Paints Applied to Ferrous Metals: | 250 g/L. |
| 8. Zinc-Rich Industrial Maintenance Primers: | 250 g/L. |
| 9. Industrial Maintenance High Temperature | 420 g/L. |
| 10. Floor Coatings: | 100 g/L. |
| 11. Stains | 250 g/L. |
| 12. Varnish | 275 g/L. |
| 13. Waterproofing Sealer - Wood | 275 g/L |
| 14. Waterproofing Sealer - Concrete | 100 g/L. |
- C. Colors: As selected by Architect from manufacturer's full range.
1. 30 percent of surface area will be painted with deep tones.

2.03 LEED CRITERIA

- A. LEED Version 4
1. All interior paints and coatings wet-applied on site must meet the applicable VOC limits of the California Air Resources Board (CARB), Suggested Control Measure (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD)

Rule 1113, effective June 3, 2011 (50g/l or less for interior flats, 100 g/l or less for non-flats, 150 g/l or less for non-flats high gloss).

2. Ninety percent of all interior paints and coatings must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.1-2010.

2.04 MIXING AND TINTING

- A. Except where specifically noted in this section, all paint shall be ready-mixed and pre-tinted. Agitate all paint prior to and during application to ensure uniform color, gloss, and consistency.
- B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water-based paints.

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.
- 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.
- 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 matte 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. CONCRETE: (Poured Concrete, Precast Concrete, Unglazed Brick, Cement Board, Tilt-Up, Cast-In-Place, including Plaster:
1. Latex Systems:
 - a. Semi-Gloss Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Masonry Interior/Exterior 100% Acrylic Sealer 608, 0.95 DFT, (46 g/L), LEED, MPI #3.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - b. Satin Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Masonry Interior/Exterior 100% Acrylic Sealer 608, 0.95 DFT, (46 g/L), LEED, MPI #3.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 - c. Eggshell / Pearl Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Masonry Interior/Exterior 100% Acrylic Sealer 608, 0.95 DFT, (46 g/L), LEED, MPI #3.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Eggshell Finish 485, 1.7 DFT, (88 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Eggshell Finish 485, 1.7 DFT, (88 g/L), LEED V4 Credit.
 - d. Low Sheen Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Masonry Interior/Exterior 100% Acrylic Sealer 608, 0.95 DFT, (46 g/L), LEED, MPI #3.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Matte Finish 484, 1.7 DFT, (82 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Matte Finish 484, 1.7 DFT, (82 g/L), LEED V4 Credit.
 2. Epoxy-Modified Systems (Water Base): Single-Component
 - a. Eggshell Finish:
 - 1) First Coat: Benjamin Moore, Ultra Spec Masonry Interior/Exterior 100% Acrylic Sealer 608, 0.95 DFT, (46 g/L), LEED, MPI #3.
 - 2) Second Coat: Benjamin Moore, Corotech Pre-Catalyzed Waterborne Epoxy Eggshell V342 (73 g/L), MPI # 151, LEED 2009.
 - 3) Third Coat: Benjamin Moore, Corotech Pre-Catalyzed Waterborne Epoxy Eggshell V342 (73 g/L), MPI # 151, LEED 2009.
- B. CONCRETE: Ceilings.
1. Latex Systems:
 - a. Flat Finish: Commercial Grade
 - 1) First Coat: Benjamin Moore, Ultra Spec Masonry Interior/Exterior 100% Acrylic Sealer 608, 0.95 DFT, (46 g/L), LEED, MPI #3.
 - 2) Second Coat: Benjamin Moore, Ultra Spec 500 Interior Latex Flat N536 (0 g/L), MPI # 53, X-Green 53, 143, X-Green 143, LEED 2009, LEED V4, CHPS Certified.

- 3) Third Coat: Benjamin Moore, Ultra Spec 500 Interior Latex Flat N536 (0 g/L), MPI # 53, X-Green 53, 143, X-Green 143, LEED 2009, LEED V4, CHPS Certified.
- C. CONCRETE: Concrete Floors (non-vehicular).
1. Acrylic Paint System (Water-Based):
 - a. Satin Finish:
 - 1) First Coat: INSL-X, Tough Shield Floor & Patio CTS-3xxx, 1.3-1.7 DFT, (89.6 g/L). Diluted as per TDS
 - 2) Second Coat: INSL-X, Tough Shield Floor & Patio CTS-3xxx, 1.3-1.7 DFT, (89.6 g/L).
- D. CONCRETE BLOCK MASONRY (CMU)
1. Latex Systems:
 - a. Semi-Gloss Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore Block Filler 0244, 8- 11 dry mils, (35 g/L), LEED Qualified.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - b. Satin Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore Block Filler 0244, 8- 11 dry mils, (35 g/L), LEED Qualified.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 - c. Eggshell / Pearl Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore Block Filler 0244, 8- 11 dry mils, (35 g/L), LEED Qualified.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Eggshell Finish 485, 1.7 DFT, (88 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Eggshell Finish 485, 1.7 DFT, (88 g/L), LEED V4 Credit.
 - d. Low Sheen Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore Block Filler 0244, 8- 11 dry mils, (35 g/L), LEED Qualified.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Matte Finish 484, 1.7 DFT, (82 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Matte Finish 484, 1.7 DFT, (82 g/L), LEED V4 Credit.
 2. Epoxy Systems (Water Base): Two-Component
 - a. Gloss Finish:
 - 1) First Coat: Benjamin Moore, Corotech Acrylic Block Filler V114, 8-16 DFT, (44 g/L), LEED
 - 2) Second Coat: Benjamin Moore, Corotech, Acrylic Epoxy Gloss V450 GL,
 - (a) 1.2 dry mils, 190 gm/l, LEED and CHPS Eligible
 - (b) Third Coat: Benjamin Moore, Corotech, Acrylic Epoxy Gloss V450 GL,
 - (c) 1.2 dry mils, 190 gm/l, LEED and CHPS Eligible.
 - b. Semi-Gloss Finish:

- 1) First Coat: Benjamin Moore, Corotech Acrylic Block Filler V114, 8-16 DFT, (44 g/L), LEED.
 - 2) Second Coat: Benjamin Moore, Corotech, Acrylic Epoxy Semi-Gloss V450 SG, 1.2 dry mils, 190 gm/l, LEED and CHPS Eligible.
 - (a) Third Coat: Benjamin Moore, Corotech, Acrylic Epoxy Semi-Gloss V450 SG, 1.2 dry mils, 190 gm/l, LEED and CHPS Eligible.
- E. METAL: Aluminum, Galvanized.
1. Latex Systems:
 - a. Semi-Gloss Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Acrylic Metal Primer HP04, 2.0 DFT (48 g/L), LEED, MPI 107, 107 X-Green, 134, CHPS
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - b. Satin Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Acrylic Metal Primer HP04, 2.0 DFT (48 g/L), LEED, MPI 107, 107 X-Green, 134, CHPS
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
- F. METAL - (Structural Steel Columns, Joists, Trusses, Beams, Miscellaneous and Ornamental Iron, Structural Iron, Ferrous Metal)
1. Latex Systems:
 - a. Semi-Gloss Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Acrylic Metal Primer HP04, 2.0 DFT (48 g/L), LEED, MPI 107, 107 X-Green, 134, CHPS
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Semi-Gloss Finish 487, (29 g/L), Qualifies for LEED V4, Qualifies for CHPS.
 - b. Satin Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Acrylic Metal Primer HP04, 2.0 DFT (48 g/L), LEED, MPI 107, 107 X-Green, 134, CHPS
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
- G. WOOD - (Walls, Ceilings, Doors, Trim):
1. Latex Systems:
 - a. Satin Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Fresh Start Multi-Purpose Latex 0023, 1.4 DFT, (44 g/L), LEED, MPI# 6, 17, 39, 137, CHPS.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Satin Finish 486, 1.7 DFT, (86 g/L), LEED V4 Credit.
 2. Stain and Varnish System:

- a. Gloss Finish:
 - 1) First Coat: Lenmar Waterborne Interior Wiping Stain 1WB.1300 (240 g/L), MPI # 186 LEED Credit.
 - 2) Second Coat: Lenmar Aqua-Plastic WB Urethane Gloss C1WB.1400, (a) (245 g/L)
 - 3) Third Coat: Lenmar Aqua-Plastic WB Urethane Gloss C1WB.1400, (245 g/L)

- H. GYPSUM BOARD - (Walls, Ceilings, Gypsum Board and similar items)
 1. Latex Systems:
 - a. Eggshell / Pearl Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec Masonry Interior/Exterior 100% Acrylic Sealer 608, 0.95 DFT, (46 g/L), LEED, MPI #3.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Eggshell Finish 485, 1.7 DFT, (88 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Eggshell Finish 485, 1.7 DFT, (88 g/L), LEED V4 Credit.
 - b. Low Sheen Finish: Scuff-Resistant
 - 1) First Coat: Benjamin Moore, Ultra Spec 500 Interior Latex Primer N534, 1.8 DFT, (0 gm/L), LEED, LEED V4, MPI 50, 50 X-Green, 149, 149 X- Green, CHPS.
 - 2) Second Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Matte Finish 484, 1.7 DFT, (82 g/L), LEED V4 Credit.
 - 3) Third Coat: Benjamin Moore, Ultra Spec Scuff-X Interior Matte Finish 484, 1.7 DFT, (82 g/L), LEED V4 Credit.

END OF SECTION 099123

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specialty casework including the following:
 - 1. Musical instrument storage casework.

1.02 RELATED SECTIONS

- A. Section 096513 - Resilient Base and Accessories.

1.03 REFERENCES

- A. Audio Engineering Society (AES): AES-4id - AES information document for room acoustics and sound reinforcement systems -- Characterization and measurement of surface scattering uniformity.
- B. ANSI A208.1 - American National Standard for Particleboard; 2022.
- C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
- D. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2022.
- E. ASTM C503/C503M - Standard Specification for Marble Dimension Stone; 2015.
- F. ASTM E488 - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements.
- G. ASTM E795 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests; 2016.
- H. BHMA A156.9 - Cabinet Hardware; 2020.
- I. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; Current Edition.
- J. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2020.
- K. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.
- L. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- M. PS 1 - Structural Plywood; 2009 (Revised 2019).
- N. US Green Building Council (USGBC): Leadership in Energy and Environmental Design (LEED).

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300 - SUBMITTALS.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Maintenance instructions and recommendations.
- C. Shop Drawings:
 1. Indicate seismic bracing and fastening requirements as applicable.
- D. Closeout Submittals: See Section 017800 - CLOSEOUT SUBMITTALS
 1. Operation and Maintenance Data: For adjusting, repairing and replacing components and accessories.
 2. Warranty: Submit manufacturer's warranty.
 3. As-Built Drawings: For completed work.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five (5) years' experience in design and manufacturing of similar products on projects of similar size, scope and complexity, and with the production capacity to meet the construction and installation schedule.
- B. Electrical Components: Listed and labeled per NFPA 70, Article 100 by a testing agency acceptable to Authorities Having Jurisdiction (AHJ).

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original unopened containers with manufacturer's labels attached. Do not deliver material until spaces to receive them are clean, dry, and ready for their installation. Ship to jobsite only after roughing-in, painting and other finishing work has been completed, installation areas are ready to accept work.
- B. Handle and install materials to avoid damage.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install materials until spaces are enclosed and weather tight, wet work in spaces is complete and dry, HVAC system is operating and maintaining ambient temperature at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Verify field measurements as indicated on Shop Drawings. Where measurements are not possible, provide control dimensions and templates.
 1. Coordinate installation and location of blocking and supports as requested.
 2. Verify openings, clearances, storage requirements and other dimensions relevant to the installation and final application.
 3. Where applicable, coordinate locations of electrical junction boxes.
- C. Field Measurements: Verify field measurements as indicated on Shop Drawings. Where measurements are not possible, provide control dimensions and templates.
 1. Coordinate locations of electrical junction boxes.
- D. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.08 WARRANTY

- A. Special Warranty for Specialty Casework: Manufacturer's written warranty indicating manufacturer's intent to repair or replace components of specialty casework that fail in materials or workmanship within ten (10 years from date of Substantial Completion. Failures are defined to include, but are not limited to, the following:
 - 1. Fracturing or breaking of casework components including doors, panels, shelves, or hardware resulting from normal wear and tear and normal use other than vandalism.
 - 2. Delamination or other failures of glue bond of components.
 - 3. Warping of casework components not resulting from leaks, flooding, or other uncontrolled moisture or humidity.
 - 4. Failure of operating hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design Manufacturer: Wenger Corporation, 7041 Interstate Island Road, Syracuse, NY 13209; Toll Free Tel: 800-836-1885; Tel: (315) 451-3440; Email: request info (JRCinfo@wengercorp.com); Web: <https://www.wengercorp.com>.
- B. Architect approved equivalent.
- C. Requests for substitutions shall be considered in accordance with provisions of Sections 016100 - BASIC PRODUCT REQUIREMENTS and 012500 - PRODUCT SUBSTITUTION PROCEDURES.
 - 1. Manufacturers seeking approval shall submit the following:
 - a. Product data, including third-party certified acoustical data and proposed graphic/drawing layout for this project.
 - b. Project references: Minimum of 5 installations not less than 3 years old, of comparable size, scope and complexity of this project, complete with owner contact information.
 - c. Sample warranty.
 - 2. Approval shall be indicated by issuance of written Addendum.
 - 3. Approved manufacturers shall meet separate requirements of Submittals Article.
 - 4. Manufacturers' products that are either listed as pre-approved in these Specifications or who have been granted approval as an alternate must still demonstrate all of the material performance and operational characteristics required by this Section.

2.02 MUSICAL INSTRUMENT STORAGE CASEWORK

- A. Basis of Design: UltraStor Storage Cabinets as manufactured by Wenger Corporation. Modular instrument storage casework with integral bases, adjustable levelers, and through-bolted fastening, enabling owner reconfiguration of unit layout.
 - 1. Adjustable shelf system integrated into cabinet walls allowing shelf placement at increments common to musical instruments. No loose parts or tools required. Shelf system to include a latch to prevent unintended shelf movement.
- B. Storage Casework Component Load Capacities:
 - 1. Robe and Uniform Storage Casework Garment Hanger Rods: Capable of supporting vertical load applied uniformly along width of unit of 200 lbf (890 N).

- C. Robe and uniform storage casework with integral bases, adjustable levelers, and through-bolted fastening, enabling owner reconfiguration of unit layout.
- D. Side Panels and Divider Panels: Particleboard thermoset panel with no urea formaldehyde added, 3/4 inch (19 mm) thick. Side panels machined to accept unit-to-unit through-bolting.
- E. Panel Doors: Particleboard thermoset panel with no urea formaldehyde added, 3/4 inch (19 mm) thick.
 - 1. Color: Maple.
- F. Panel Edge Banding: 3 mm thick, heat-bonded, with radiused and profiled edges and corners.
- G. Shelving: Sized with adequate gap between shelving and casework side panels to allow air movement inside casework.
 - 1. Up to 27 inches (686 mm) wide: Removable molded polyethylene shelf, with impact-resistant, radiused front edge, mounted to cabinet wall with self-locking clip.
 - 2. Over 27 inches (686 mm) wide: For large instrument casework: Removable formed polyethylene shelf, ribbed, with high-impact-resistant, radiused front edge, supported by steel tube frame.
 - 3. Tubular steel supports are included for shelves over 19 inches (483 mm) wide.
- H. Flag Storage and Garment Ring: 5/16 inch (8 mm) diameter steel rod bolted to steel center post with 10 gauge steel brackets.
- I. Casework Panel Color: As selected by Architect from manufacturer's standard colors.
- J. Butt Hinges: 2-3/4 inches (70 mm), 5-knuckle steel hinges made from 0.090 inch (2.29 mm) thick metal, BHMA A156.9, Grade 1, with powder-coated finish, through-bolted to door and side panels and welded to grille door frames. Provide 2 hinges on compartment doors, and 4 hinges on full-height doors.
- K. Slide Latch: 0.105 inch (2.67 mm) min. thickness steel, with padlock eye, powder-coat finish, through-bolted to panel door and side panel and welded to grille door frames. Latches securely without padlock. Provide with clear plastic label holder for use with standard size labels; number system available for user to print. Padlocks furnished by Owner.
- L. Panel Connectors: 1/4 - 20 by 1.77 inch (45 mm) panel connectors, with steel thread inserts, powder coated to match panels.
- M. Cabinet Levelers: Leveling glides with 3/8 inch (9.5 mm) diameter threaded steel rod in steel corner brackets, minimum two each per cabinet side, accessible from within unit, and concealed in completed installation.
- N. Carcass joinery includes lag screws powder coated to match substrate.
- O. Back panel: 7/32 inch (5.6 mm) reinforced with 3/4 inch (19 mm) stretchers panels held in a dado groove and lag screwed in place.
- P. Fasteners: Manufacturer-recommended fasteners as required for casework substrate and project performance requirements, consisting of one or more of the following:
 - 1. Sheet Metal Screws: SAE J78, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.

2. Wood Screws: ASME B18.6.1.
 3. Expansion Anchors in Concrete and Concrete Masonry Units: Carbon-steel, zinc plated.
 4. Hardware supplied to anchor the cabinets to the wall and to adjacent casework.
- Q. Finish: Steel Sheet, Steel Wire, and Exposed Fasteners. Urethane-based electrostatic powder coating. Color: As selected by the Architect from the manufacturer's full color offering.
- R. Materials Meeting Sustainable Design Requirements:
1. No Added Urea Formaldehyde Products: Provide music education storage casework made with composite products and adhesives with no urea formaldehyde added.
 2. FSC Certified Wood Products: Provide music education storage casework made with wood from certified sources. Also available in Moisture Resistant, Class 1 Fire rated and Plywood cores.
 - a. Options to be provided: Moisture-resistant, Class 1, Fire-rated, and Plywood cores
- S. Particleboard: ANSI A208.1, minimum 43 lb/cu. ft. (689 kg/cu. m) density, composite products and adhesives, with no urea formaldehyde added.
- T. Fire Rated Particle Board: ANSI A208.1, minimum 45 lb/cu. ft. (720 kg/cu. m) density ASTM E-84 class 1.
- U. Plywood: APA standard PS 1; Section 5.7.4 or 5.7.1 or HPVA HP-1 Panels provided with HDF skins to prevent grain telegraphing.
- V. Particleboard Thermoset Panels: Particleboard panel with no formaldehyde added 3/4 inch (19 mm) thick finished with thermally-fused polyester surfacing on both sides meeting performance requirements of NEMA LD 3 for VGS grade, edge-banded, including the following:
1. Surface Abrasion Resistance: Taber Wheel, 400 cycles, for solid colors.
- W. Polyethylene Shelves: High-density, one-piece, blow-molded or polyethylene, with radiused front edge, for abuse-resistant shelves. Color through.
- X. PVC Edge Banding: Radiused PVC extrusions, 1/8 inch (3 mm) thick.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine installation areas and mounting surfaces with Installer present, for compliance with manufacturer's installation tolerances including required clearances, floor level, location of blocking and anchoring reinforcements, and other existing conditions that may affect installation or performance.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Proceed with installation only after correction of unsatisfactory conditions.

3.02 INSTALLATION OF SPECIALTY CASEWORK

- A. Install plumb, level, and true; using integral levelers. Install in accordance with manufacturer's recommendations and approved submittals.

1. Install seismic bracing and fastening in accordance with approved shop drawings.
- B. Install hardware uniformly and precisely. Set hinges snug and flat. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- C. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind and close with uniform reveals.
- D. Metal Shelving Requirements:
 1. Anchor uprights to walls using anchors of type, size, and spacing recommended by manufacturer.
 2. Install shelves in each unit.
 3. Erect cantilever adjustable uprights to substrate with a maximum tolerance from vertical of 1/4 inch (6 mm).
 4. Adjust metal shelving so connectors and other components engage accurately and securely. Verify modular components fit easily into alternate locations without force or use of tools.

3.03 CLEANING AND PROTECTION

- A. Repair or replace defective work as directed by Architect upon inspection.
- B. Clean surfaces. Touch up marred finishes, or replace damaged components that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by manufacturer.
- C. Protect installed products from damage, abuse, dust, dirt, stain, or paint until completion of project. Do not permit use during construction.

END OF SECTION 116001

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Plate Mounted Combination Football Goal Post and Soccer Goal

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation
- B. Section 321823.29 - Synthetic Infill Turf
- C. Section 033000 - Cast-in-Place Concrete

1.03 REFERENCES

- A. Nation Federation of State High School Associations
- B. Manufacturers Data and Recommended Installation Requirements

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Submit manufacturer's literature on the base, gooseneck, gooseneck support, uprights, crossbars and accessories for the football goal post.
- C. Manufacturer's Installation Instructions: Submit instructions that describe installation methods.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products under provisions of Sections 016500.
- B. Store products on firm, level ground.
- C. Handle products in a manner which will not induce unnecessary stresses, cause cracks to occur or damage the product in any way.
- D. Any cracked or otherwise defective materials will be rejected.

1.06 COORDINATION

- A. Coordinate work under provisions of Section 013100.
- B. Coordinate with installation of synthetic turf and track.

1.07 PROJECT CLOSEOUT SUBMITTALS

- A. Submit under provisions of Section 017800
- B. Provide touch up paint
- C. Submit manufacturer's warranty

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. SPORTSFIELD SPECIALTIES, INC
 - 1. Football and Soccer Goal Set: SG4985HSPL
- B. Substitutions shall be permitted only after receiving written approval from the Engineer.

2.02 COMPONENTS

- A. Football Goal Post.
 - 1. Gooseneck support: fabricated of 6" SCH 40 aluminum pipe (6.625 in. OD minimum), 5.0 ft radius, 8.0 ft. offset.
 - 2. Crossbar: fabricated of 6" SCH 40 aluminum pipe (6.625 in. OD).
 - a. Length: 23 ft. - 4 in.
 - b. With internal rotating sleeve for upright adjustment.
 - 3. Uprights: Fabricated of extruded 6061 T6 aluminum tube (4.0 in. OD minimum) with rigid wire loop at upper end.
 - a. Length: 20.0 ft.
- B. Soccer Goal.
 - 1. Crossbar: fabricated of 6061 T6 extruded aluminum tube, 4.375 in. x 4.688 in.
 - a. Length: 24 ft.
 - b. Round face with radiused backside corners.
 - c. 7 ga steel crossbar attachment brackets.
 - 2. End Frame: Fabricated of 6061 T6 extruded aluminum tube, 4.375 in. x 4.688 in.
 - a. Corner upright posts, 4.375 in. x 4.688 in.
 - b. Rolled side frame, 2 in. x 3 in. 0.125 in. tig welded to corner upright posts.
 - c. Round face with radiused backside corners.
 - 3. Bottom Ground Bar: fabricated of 6061T6 extruded aluminum 2 in. square, 0.25 in. thick.
- C. Soccer Goal Backbar Safety Clamp Kit
 - 1. Safety Clamp: SG2S-GP by SPORTSFIELD SPECIALTIES, INC. or equal.
 - 2. Fabricated of 0.187 in. aluminum
 - 3. Stainless steel hardware
- D. Wheel Kit
 - 1. SG 4955 by SPORTSFIELD SPECIALTIES, INC. or equal
 - 2. Welded 13 ga. Stainless steel mobile frame
 - 3. UHMW polyethylene wheel
 - 4. Stainless steel hardware
- E. Football Goal Post Pad
 - 1. GP4590RFULL by SPORTSFIELD SPECIALTIES, INC. or equal
 - 2. Polyurethane foam core with Vinyl exterior, Velcro attachment for securing pad to post.
 - 3. Color to be selected by Owner.

2.03 ACCESSORIES - FOOTBALL GOAL POST

- A. Ground Plate: ½ in. steel plate, 16 in. square with 18" long 'L' bolts.

- B. Access Frame: fabricated of 0.125 inch aluminum, 22.25 in. square, 6.0 in. high, with eight anchor bolts. Include Filler Plugs: fabricated of 0.5 in. pressure treated plywood and .1875 in. aluminum.
- C. Directional Wind Flags: Nylon flags, 2 per goal post.
- D. Touch-up Paint: Manufacturer's standard
- E. Assembly Hardware: Stainless steel

2.04 ACCESSORIES - SOCCER GOAL

- A. Net Clips: Welded aluminum
- B. Net: Polypropylene, black
- C. Hardware: Stainless steel

2.05 FINISHES

- A. Football Goal Post: Powder coat, yellow
- B. Soccer Goal: Powder coat, white

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing site conditions.
- B. Verify existing grades are as indicated on the plans.
- C. Verify that sub grade is properly compacted and ready to receive work of this section.
- D. Verify items provided by other sections of work are properly sized and located.

3.02 INSTALLATION

- A. Install all equipment and accessories in accordance with manufacturer's instructions.

3.03 ADJUSTING

- A. Adjust football goal post to achieve plumbness.

END OF SECTION 116833.13

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. 2" Ball safety netting system

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation
- B. Section 321823.29 - Synthetic Infill Turf
- C. Section 033000 - Cast-in-Place Concrete

1.03 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Submit manufacturer's literature.
- C. Manufacturer's Installation Instructions: Submit instructions that describe installation methods.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products under provisions of Sections 016500.
- B. Store products on firm, level ground.
- C. Handle products in a manner which will not induce unnecessary stresses, cause cracks to occur or damage the product in any way.
- D. Any cracked or otherwise defective materials will be rejected.

1.05 COORDINATION

- A. Coordinate work under provisions of Section 013100.
- B. Coordinate with installation of synthetic turf and track.

1.06 PROJECT CLOSEOUT SUBMITTALS

- A. Submit under provisions of Section 017800.
- B. Submit manufacturer's warranty

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. SPORTSFIELD SPECIALTIES, INC
 - 1. Base: BSS415 Ball safety netting system
- B. Or approved equal

2.02 COMPONENTS

- A. Upright Posts
 - 1. Fabricated with 2" schedule 40 aluminum pipe and 2" schedule 80 aluminum pipe (end posts):
 - a. Height above ground equal to system height plus 8" (for net stretching and hardware)
 - b. Aluminum mill finish
- B. Upright Posts ground sleeves
 - 1. Fabricated with 2.5" aluminum having the following attributes:
 - a. 24" length
 - b. Aluminum mill finish
 - c. Aluminum ground sleeve caps
- C. Ball Safety Net
 - 1. 15' high
 - 2. #36 black nylon 1 3/4" square mesh
- D. Accessories
 - 1. Stainless steel assembly hardware
 - 2. Quick-clips for net attachment
 - 3. 4" net guide rings
 - 4. Black vinyl coated wire rope

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing site conditions.
- B. Verify existing grades are as indicated on the plans.
- C. Verify that sub grade is properly compacted and ready to receive work of this section.
- D. Verify items provided by other sections of work are properly sized and located.

3.02 INSTALLATION

- A. Install all equipment and accessories in accordance with manufacturer's instructions.

END OF SECTION 116833.53

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single-sided LED soccer scoreboard

1.02 REFERENCES

- A. Standard for Electric Signs, UL 48
- B. Standard for CSA C22.2 #207
- C. Federal Communications Commission Regulation Part 15
- D. National Electric Code

1.03 SUBMITTALS

- A. Product data: Submit manufacturer's product illustrations, data and literature that fully describe the scoreboards and accessories proposed for installation.
- B. Shop drawings: Submit mechanical and electrical drawings.
- C. Maintenance data: Submit manufacturer's installation, operation, and maintenance manuals.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Product delivered on site
- B. Scoreboard and equipment to be housed in a clean, dry environment

1.05 PROJECT CONDITIONS

- A. Environmental limitations: Do not install scoreboard equipment until mounting structure is secure and concrete has ample time to cure.
- B. Field measurements: Verify position and elevation of structure and its layout for scoreboard equipment. Verify dimensions by field measurements.
- C. Verify mounting structure is capable of supporting the scoreboard's weight and windload in addition to the auxiliary equipment.
- D. Installation may proceed within acceptable weather conditions.

1.06 QUALITY ASSURANCE

- A. For outdoor use
- B. Source Limitations: Obtain each type of scoring or related equipment through one source from a single manufacturer.
- C. ETL listed to UL 48

- D. NEC compliant
- E. FCC compliant
- F. ETLIC listed to CSA 22.2 #207

1.07 WARRANTY

- A. Provide 5 years of no cost parts exchange including standard shipping on electronics parts and radios due to manufacturing defects
- B. Provide toll-free service coordination
- C. Provide technical online and phone support during Daktronics business hours

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Daktronics, Inc., 201 Daktronics Drive, P.O. Box 5128, Brookings, SD 57006-5128
- B. Architect approved equivalent.

2.02 PRODUCT

- A. Daktronics SO-2002 single-sided soccer scoreboard displays period time to 99:59, HOME and GUEST scores to 99, SHOTS for each team to 99 and PERIOD to nine. During the last minute of the period, the clock displays time to 1/10 of a second.

2.03 SCOREBOARD

- A. General information
 - 1. Dimensions: 4'-6" X 16'-0" X 8".
 - 2. Base weight: 275 lbs with vinyl captions – options may increase weight
 - 3. Base power requirement: 255 W (red/amber digits), 560 W (white digits) with vinyl – options may increase wattage
 - 4. Color: As selected by the Architect from the manufacturer's full color offering.
- B. Construction
 - 1. Alcoa aluminum alloy 5052 for excellent corrosion resistance
 - 2. Scoreboard back, face, and perimeter: 0.063 inch (1.60 mm) thick
 - 3. Scoreboard top and bottom: 0.125 inch (3.18 mm) thick
- C. Digits
 - 1. LED color: Amber
 - 2. HOME, GUEST, PERIOD, SHOTS, and clock digits: 18 inches (457 mm) high
 - 3. Seven bar segments per digit
 - 4. PanaView® LED digit technology
 - 5. All digits are sealed front and back with weather-tight silicone gel
- D. Captions
 - 1. Electronic

2. Electronic Team Name Captions: 8x32
3. Electronic SHOTS and PERIOD captions: 8 inches (203 mm) high
4. Top ID Panel with School Name
5. Color: Same as Digits.

E. Accessory Equipment

1. Vinyl striping applied around the clock and scoreboard face.
2. Programmable Team Name Message Centers (TNMCs) – add 80 lb (36 kg) and 70 W (160 W for white).
3. Two 19.375 inch (492 mm) high, 29.375 inch (746 mm) wide vinyl logo/sponsor areas on display face.
4. Football captions on changeable panels.
5. Lacrosse/field hockey captions on changeable panels.
6. Baseball captions on changeable panels.
7. Horn.
8. Standalone Time of Day (scoreboard acts as a clock when control console is unplugged/off).
9. Individual digit protective screens.

2.04 SCORING CONSOLE

- A. Console is an DAK Score App with Outdoor Enclosure controller.
- B. Scores multiple sports using changeable keyboard inserts.
- C. Controls multiple scoreboards and displays, including other DAK Score App with Outdoor Enclosure controlled displays currently owned by customer
- D. Recalls clock, score, and period information if power is lost.
- E. Runs Time of Day and Segment Timer modes.
- F. Console includes:
 1. Rugged aluminum enclosure to house electronics.
 2. Sealed membrane water-resistant keyboard.
 3. 32-character LCD to verify entries and recall information currently displayed.
 4. Power cord that plugs into a standard grounded outlet; 6 watts max.
 5. Control cable to connect to the control receptacle junction box (wired system only).
 6. Hand-held switch for main clock start/stop and horn.
 7. Soft-sided carrying case.
- G. Accessory Equipment
 1. 2.4 GHz spread spectrum radio system with frequency hopping technology and 64 non-interfering channels; system includes a transmitter installed inside the console and a receiver installed inside the scoreboard(s).
 2. Hard carrying case.
 3. Battery pack.



PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that mounting structure is ready to receive scoreboard. Verify that placement of conduit and junction boxes are as specified and indicated in plans and shop drawings. Verify concrete has cured adequately according to specifications.

3.02 INSTALLATION

- A. All power and control cables to scoreboards and displays will be routed in conduit. Power to the scoreboards/displays as well as raceways shown on electrical plans by the Electrical Contractor. Scoreboard control wiring including conduit will be the responsibility of the contractor assigned the scoreboard equipment.
- B. Install scoreboards and exterior displays to beams in location detailed and in accordance with manufacturer's instructions. Verify unit is plumb and level.

3.03 INSTALLATION—CONTROL CENTER

- A. Provide boxes, cover plates and jacks in locations per plans.
- B. Test connect control unit to all jacks and check for proper operation of control unit, scoreboard and all features. Leave control unit in carrying case and other loose accessories with owner's designated representative.
- C. Verify earth ground does not exceed 15 ohms.

END OF SECTION 116843

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This section describes the general requirements for all mechanical items and systems required by the Contract Documents.
- B. Comply with all Contract Requirements, General Conditions, Supplementary Conditions and Division 1 Sections applying to or affecting the Work of Division 23.
- C. Unless specifically dimensioned, the Work shown on the Drawings is in diagrammatic form only to show general arrangement.
- D. Include, in the Work, all accessories and appurtenances, necessary and integral, for the intended operation of any system, component or device, as such systems, components and devices are specified.
- E. Do not install pipe or conduit through ductwork.
- F. If the pipe or duct size shown on the Drawings does not match the connection size of the equipment that it is connected to, provide the necessary transition pieces at the piece of equipment.
- G. Do not use or allow to be used asbestos or asbestos-containing materials on this project. Be rigorous in assuring that all materials, equipment, systems and components thereof do not contain asbestos. Any deviations from this requirement shall be remedied at the Contractor's expense without regard to prior submittal approvals.

1.02 RELATED DOCUMENTS

- A. The General Conditions and General Requirements Division 1 apply to the Work of this Section.

1.03 REFERENCE STANDARDS

- A. Compliance with the following codes and standards shall be required:
 - 1. Codes, Rules and Regulations of the State of New York
 - 2. USAS USA Standards Institute (Formerly ASA)
 - 3. AMCA Air Moving and Conditioning Association
 - 4. ADC Air Diffusion Council
 - 5. NEMA National Electrical Manufacturers Association
 - 6. FM Factory Mutual
 - 7. NFPA National Fire Protection Association
 - 8. ASTM American Society for Testing Materials
 - 9. UL Underwriters Laboratories, Inc.
 - 10. NEC National Electrical Code
 - 11. ASME American Society of Mechanical Engineers
 - 12. ANSI American National Standards Institute
 - 13. OSHA Occupational Safety and Health Act
 - 14. BSA Board of Standards and Appeals
 - 15. MEA Materials and Equipment Acceptance
 - 16. DEC New York State Department of Environmental Conservation - 6 NYCRR Part 613 Handling and Storage of Petroleum

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|-----|--|--|
| 17. | ASHRAE | American Society of Heating, Refrigeration and Air Conditioning Engineers. |
| 18. | AWWA | American Water Works Association |
| 19. | MSS | Manufacturer's Standardization Society of the Valve and Fitting Industry |
| 20. | ARI | American Refrigeration Institute |
| 21. | SMACNA | Sheet Metal and Air Conditioning Contractor's National Association |
| 22. | TEMA | Tubular Exchanger Manufacturers Association |
| 23. | F.S. or FED | Spec. Federal Specification |
| 24. | ASA | Acoustical Society of America |
| 25. | NACE | National Association of Corrosion Engineers |
| 26. | ASSE | American Society of Sanitary Engineers |
| 27. | International Building Code | |
| 28. | International Fire Code | |
| 29. | International Existing Building Code | |
| 30. | International Fuel Gas Code | |
| 31. | International Plumbing Code | |
| 32. | International Energy Conservation Code | |
| 33. | International Mechanical Code | |
| 34. | New York State Industrial Code Rules | |
| 35. | IRI | Industrial Risk Insurers |
| 36. | AGA | American Gas Association |
| 37. | AABC | American Air Balance Council |
| 38. | NEBB | National Environmental Balancing Bureau |
| 39. | AWS | American Welding Society |

1.04 DEFINITIONS

- A. "Provide" means furnish and install, complete the specified material, equipment or other items and perform all required labor to make a finished installation.
- B. "Furnish and install" has the same meaning as given above for "Provide."
- C. Refer to General Conditions for other definitions.

1.05 ABBREVIATIONS

- A. Reference by abbreviation may be made in the Specifications and the Drawings in accordance with the following list:
 - 1. HVAC Heating, Ventilating and Air Conditioning
 - 2. CM Construction Manager
 - 3. AC Air Conditioning
 - 4. H & V Heating and Ventilating
 - 5. AWG American Wire Gauge
 - 6. BWG Birmingham Wire Gauge
 - 7. USS United States Standard
 - 8. B & S Brown & Sharpe
 - 9. OS & Y Outside Screw and Yoke
 - 10. IBBM Iron Body Brass Mounted
 - 11. WSP Working Steam Pressure
 - 12. PSIG Pounds per Square Inch Gauge
 - 13. PRV Pressure Reducing Valve

- 14. GPM Gallons per Minute
 - 15. MBH Thousand BTU per hour
 - 16. BTU British Thermal Units
 - 17. WG Water Gage
 - 18. LB Pound (Also shown as: #)
 - 19. ASME American Society of Mechanical Engineers
 - 20. ASTM American Society for Testing Materials
 - 21. ABMA American Boiler Manufacturers Association
 - 22. ASA American Standards Associates
 - 23. MER Mechanical Equipment Room
- See Drawings for additional abbreviations

1.06 REVIEW OF CONTRACT DOCUMENTS AND SITE

- A. Give written notice with the submission of bid to the Architect/Engineer of any materials or apparatus believed inadequate or unsuitable, in violation of laws, ordinances, rules or regulations of Authorities having jurisdiction, and any necessary items of work omitted. In the absence of such written notice it is mutually agreed that the Contractor has included the cost of all required items in his proposal for a complete project.
- B. Contractors shall acknowledge that they have examined the Plans, Specifications and Site, and that from his own investigations he has satisfied himself as to the nature and location of the Work; the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials; availability of labor, utilities, roads and uncertainties of weather; the composition and condition of the ground; the characters quality and quantity of subsurface materials to be encountered; the character of equipment and facilities needed preliminary to and during the execution of the Work; all federal, state, county, township and municipal laws, ordinances and regulations particularly those relating to employment of labor, rates of wages, and construction methods; and all other matters which can in any way affect the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with the available information concerning these conditions will not relieve him from the responsibility for successfully performing the Work.
- C. Owner assumes no responsibility for any understanding or representation made during or prior to the negotiation and execution of this Contract unless such understanding or representations are expressly stated in the Contract and the Contract expressly provides that the responsibility, therefore, is assumed by the Owner.

1.07 MEASUREMENTS

- A. Base all measurements, both horizontal and vertical from established bench marks. Make all Work agree with these established lines and levels. Verify all measurements at site; and check the correctness of same as related to the Work.

1.08 LABOR AND MATERIALS

- A. Provide all materials and apparatus required for the Work of new and first-class quality. Furnish, deliver, arrange, erect, connect and finish all materials and equipment in every detail, so selected and arranged as to fit properly into the building spaces.
- B. Remove all materials delivered, or work erected, which does not comply with Drawings or Specifications, and replace with proper materials, or correct such work as directed, at no additional cost to the Owner.

1.09 COVERING OF WORK

- A. Do not cover up or hide from view any duct, piping, fitting, or other work of any kind before it has been examined or approved by the Architect/Engineer and/or other authority having jurisdiction over the same. Remove and correct immediately any unacceptable or imperfect work or unauthorized or disapproved materials discovered immediately after being disapproved.

1.10 PROTECTION

- A. Protect the Work and material of all trades from damage and replace all damaged material with new.
- B. Protect work and equipment until the Work is finally inspected, tested, and accepted; protect the Work against theft, injury or damage; and carefully store material and equipment received on site which is not immediately installed; close open ends of work with temporary covers or plugs during construction to prevent entry of foreign material.
- C. Preserve all public and private property, along and adjacent to the Work, and use every precaution necessary to prevent damage or injury thereto. Use suitable precautions to prevent damage to pipes, conduits and other underground structures or utilities, and carefully protect from disturbance or damage all property marks until an authorized agent has witnessed or otherwise referenced their location, and do not remove them until directed.

1.11 CUTTING AND PATCHING

- A. Provide all cutting and rough patching required for the Work. Perform all finish patching.
- B. Furnish and locate all sleeves and inserts required before the floors and walls are built, pay the cost of cutting and patching required for pipes where sleeves and inserts were not installed in time, or where incorrectly located. Provide all drilling required for the installation of hangers.
- C. Punch or drill all holes cut through concrete slabs or arches from the underside. Do not cut structural members without the approval of the Architect/Engineer. Perform all cutting in a manner directed by the Architect/Engineer.
- D. Do not do any cutting that may impair strength of building construction. Do not drill any holes, except for small screws, in beams or other structural members without obtaining prior approval. All Work shall be done in a neat manner by mechanics skilled in their trades and as approved.

1.12 SUBMITTALS

- A. Submit for review, shop drawings for all materials and equipment furnished and installed under this Contract. Submissions shall include but not be limited to:
 - 1. Ductwork layout drawings, air devices and accessories
 - 2. Breeching layout drawings
 - 3. Piping and equipment layout drawings.
 - 4. Piping materials, valves, hangers, supports and accessories
 - 5. Automatic temperature control equipment, diagrams and control sequences
 - 6. Equipment, fixtures, and appurtenances
 - 7. Insulation
 - 8. Rigging Plan - Include the name of the rigging company; a layout drawing that details the crane with its outriggers extended outward. Provide dimensions showing how rigging

operations will affect the road and parking lines being used, the type of crane and its specification including crane arm height, lift capacity, crane reach.

- B. Reports
 1. Compliance with listings and approvals for equipment and for fire ratings.
 2. Acceptance certificates from inspecting agencies.
 3. Complete printed and illustrated operating instructions in report format.
 4. Manufacturer's performance tests of equipment.
 5. Field pipe and duct testing reports.
 6. Field operating test results for equipment.
 7. Performance report on the balancing of air and water systems.
 8. Performance reports for vibration isolation equipment.
 9. Manufacturer's reports on motorized equipment alignment and installation.
- C. Specific references to any article, device, product or material, fixture or item of equipment by name, make or catalog number shall be interpreted as establishing a basis of cost and a standard of quality. All devices shall be of the make and type listed by Special Agencies, such as the Underwriters' Laboratories, and where required, approved by the Fire Department.

1.13 SPACE ALLOTMENTS AND SUBSTITUTIONS

- A. The space allotments and equipment layouts on the Drawings are based on the manufacturer's model indicated or scheduled as the "Basis of Design". Ensure that any equipment that is submitted other than the "Basis of Design" will fit in the space allotment and will provide the necessary maintenance clearances as recommended by the manufacturer. If maintenance clearances are not met, pay for any changes such that maintenance clearances will be met.
- B. Bear all costs associated with re-layout of the equipment, changes to piping/ductwork, and other changes as required if approved equipment other than the "Basis of Design" equipment is purchased. This shall also include any structural steel modifications and structural steel design changes. Submit, at no cost to the Owner, a steel design stamped by a structural engineer licensed in the state in which the Work is to be performed for structural modifications that must be made resulting from the use of equipment other than the "Basis of Design" or not specified.

1.14 PAINTING

- A. Prime paint all bare supplemental steel, supports and hangers required for the installation of Division 23 Work in accordance with "Painting" Specification Section. Touch up welds of galvanized surfaces with galvanizing primer.

1.15 MATERIAL SAFETY DATA SHEETS

- A. Submit material safety data sheets (MSDS) for all chemicals, hydraulic fluids, seal oils, lubricating oils, glycols and any other hazardous materials used in the performance of the Work, in accordance with the US Department of Labor, Occupational Safety and Health Administration (OSHA) hazard communication and right-to-know requirements stipulated in 29 CFR 1910.1200 (g).

1.16 MOTORS AND STARTERS

- A. Provide new NEMA Standard electric motors, sized and designed to operate at full load and full speed continuously without causing noise, vibration, and temperature rise in excess of their rating. Provide motors with a service factor of at least 1.15.

- B. Equip motors for belt driven equipment with rails with adjusting screws for belt tension adjustment. Weather protect motors exposed to the weather.
- C. Install high efficiency electric motors for air handling units, relief fans, and exhaust fans.
- D. Provide all motors for use with Variable Frequency Drives with “high efficiency inverter duty” insulation class “F” with class “B” temperature rise and that conform to or exceed the International Energy Conservation Code or the Federal EP Act of 1992 requirements for efficiency.
- E. Provide stainless steel nameplates, permanently attached to the motor, and having the following information as a minimum:
 - 1. Manufacturer
 - 2. Type
 - 3. Model
 - 4. Horsepower
 - 5. Service Factor
 - 6. RPM
 - 7. Voltage/Phase/Frequency
 - 8. Enclosure Type
 - 9. Frame Size
 - 10. Full-Load Current
 - 11. UL Label (where applicable)
 - 12. Lead Connection Diagram
 - 13. Bearing Data
 - 14. Efficiency at Full Load.
- F. Provide motors whose sound power levels do not exceed that recommended in NEMA MG 1-12.49.
- G. Provide motors with drive shafts long enough to extend completely through belt sheaves when sheaves are properly aligned and balanced.
- H. Protect motor starters on equipment located outdoors in weatherproof NEMA 4X enclosures.
- I. Provide weatherproof NEMA 4X disconnect switches when located outdoors.
- J. Motor Characteristics:
 - 1. 120V/1/60 Hz, 208V/1/60 Hz or 240V/1/60 Hz: Capacitor start, open drip-proof type, ball bearing, rated 40 C. continuous rise.
 - 2. 208V/3/60 Hz, 240V/3/60 Hz or 460/3/60 Hz: NEMA B, normal starting torque, single speed, squirrel-cage type, open drip-proof, rated 40 C continuous rise, with ball bearings rated for B-10 life of 100,000 hours and fitted with grease fittings and relief ports. Provide motors with aluminum end brackets with steel inserts in bearing cavities.

1.17 ACOUSTICAL PERFORMANCE OF EQUIPMENT AND SYSTEMS

- A. Install the Work in such a manner that noise levels from operation of motor driven equipment, whether airborne or structure-borne, and noise levels created by or within air handling equipment and air distribution and control media, do not to exceed sound pressure levels determined by the noise criteria curves published in the ASHRAE guide.

B. Acoustical Tests

1. Owner may direct the Contractor to conduct sound tests for those areas he deems too noisy.
2. If NC level exceeds the requirements of the Contract Documents due to improper installation or operation of mechanical systems, make changes or repairs to bring noise levels to within required levels.
3. Retest until specified criteria have been met.

1.18 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Instructions and Demonstration for Owner's Personnel

1. Provide operating and maintenance instruction to the Owner when project is completed and all HVAC equipment serving the building is ready to be turned over to the Owner.
2. Turn over the HVAC equipment to the Owner only after the final testing and proper balancing of HVAC systems.
3. Instruct the Owner's personnel in the use, operation and maintenance of all equipment of each system.
4. The above instruction requirements are in addition to that specified for specific equipment or systems. Conform to specified requirements if more stringent or longer instruction is specified for specific equipment or systems.

1.19 CODES, RULES, PERMITS & FEES

- A. Give all necessary notices, obtain all permits and pay all government sales taxes, fees, and other costs, in connection with the Work. Unless indicated otherwise, fees for all utility connections, extensions, and tap fees for water, storm, sewer, gas, telephone, and electricity will be paid directly to utility companies and/or agencies by the Owner. File all necessary plans, prepare all documents and obtain all necessary approvals of all governmental departments having jurisdiction; obtain all required certificates of inspection for the Work and deliver same to the Owner's Representative before request for acceptance and final payment for the Work.
- B. Conform to the requirements of the NFPA, NEC, FM, UL and any other local or State codes which may govern.

1.20 RECORD DRAWINGS

- A. During the progress of the Work, make a record set of drawings of all changes by which the actual installation differs from the Drawings.
- B. Create all record drawings in AutoCAD version 2013 or later in .dwg format. Upon completion of the Work, submit to the Architect/Engineer for approval three complete sets of hard copies of the record drawings, of the same size as the Drawings for approval. Upon approval by the Architect/Engineer furnish the Owner a CD copy of the record drawings along with one hard copy for his records.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 CLEANING AND ADJUSTING

- A. Cleaning
 - 1. Blow out, clean and flush each system of piping and equipment, to thoroughly clean the systems.
 - 2. Clean all materials and equipment; leave in condition ready to operate and ready to receive final finishes where required.
 - 3. Clean the operating equipment and systems to be dust free inside and out.
 - 4. Clean concealed and unoccupied areas such as plenums, pipe and duct spaces and equipment rooms to be free of rubbish and dust.
- B. Adjusting
 - 1. Adjust and align equipment interconnected with couplings or belts.
 - 2. Adjust valves of all types and operating equipment of all types to provide proper operation.
 - 3. Clean all strainers after system cleaning and flushing and again before system startup.
- C. Lubrication
 - 1. Lubricate equipment as recommended by the manufacturer, during temporary construction use.
 - 2. Provide complete lubrication just prior to acceptance.
- D. Permanent Equipment Operating During Construction
 - 1. Use only in same service as the permanent applications.
 - 2. Use disposable filters during temporary operation.
 - 3. Replace expendable media, including belts used for temporary operation and similar materials just prior to acceptance of the Work.
 - 4. Repack packing in equipment operated during construction just prior to system acceptance, using materials and methods specified by the equipment manufacturer.
- E. Retouch or repaint equipment furnished with factory finish as required to provide same appearance as new.
- F. Tools
 - 1. Provide one set of specialized or non-standard maintenance tools and devices required for servicing the installed equipment.

3.02 EQUIPMENT BASES, PLATFORMS AND SUPPORTS

- A. Provide supporting platforms, steel supports, anchor bolts, inserts, etc., for all equipment and apparatus provided.
- B. Obtain prior approval for installation method of structural steel required to frame into building structural members for the proper support of equipment, conduit, etc. Welding will be permitted only when approved by the Architect/Engineer.

- C. Submit shop drawings of supports to the Architect/Engineer for approval before fabricating or constructing.
- D. Provide leveling channels, anchor bolts, complete with nuts and washers, for all apparatus and equipment secured to concrete pads and further supply exact information and dimensions for the location of these leveling channels, anchor bolts, inserts, concrete bases and pads.
- E. Where supports are on concrete construction, take care not to weaken concrete or penetrate waterproofing.

3.03 ACCESSIBILITY

- A. Install valves, dampers and other items requiring access conveniently and accessibly located with reference to the finished building.

3.04 USE OF EQUIPMENT

- A. The use of any equipment, or any part thereof, even with the Owner's consent, is not an indication of acceptance of the Work on the part of the Owner, nor shall it be construed to obligate the Owner in any way to accept improper work or defective materials.

3.05 MODIFICATIONS OF EXISTING WORK

- A. Coordinate the Work with all other contractors and provide necessary dimensions for all openings. Provide all cuts and openings which are necessary for the Work for passage of piping and ductwork
- B. Upon completion, remove all temporary piping and equipment, shoring, scaffolds, etc., and leave all areas clean and free from material and debris resulting from the Work performed under this Section. Provide rough patching in areas required.

3.06 EQUIPMENT INSTALLATION

- A. Locate and set equipment anchor bolts, dowels and aligning devices for equipment requiring them.
- B. Level and shim the equipment; coordinate and oversee the grouting work.
- C. Perform field assembly, installation and alignment of equipment under direct supervision provided by the manufacturer or with inspections, adjustments and approval by the manufacturer.
- D. Alignment and Lubrication Certification for Motor Driven Apparatus
 - 1. After permanent installation has been made and connections have been completed, but before the equipment is continuously operated, have a qualified representative of the equipment manufacturer inspect the installation and report in writing on the manufacturer's letterhead on the following:
 - a. Whether shaft, bearing, seal, coupling, and belt drive alignment and doweling is within the manufacturer's required tolerances so that the equipment will remain aligned in the normal service intended by the Contract Documents and that no strain or distortion will occur in normal service.
 - b. That all parts of the apparatus are properly lubricated for operation.

- c. That the installation is in accordance with manufacturer's instructions.
 - d. That suitable maintenance and operating instructions have been provided for the Owner's use.
 - e. Make any corrections to items that are required or recommended based on the manufacturer's inspection and have the equipment re-inspected.
- E. Belt Drives
1. V-belt drives - a driving and driven sheave grooved for belts of trapezoidal cross-section. Construct belts of fabric and rubber so designed so as not to touch the bottom of the grooves, the power being transmitted by the contact between the belts and V-shaped groove sides. Design drives for a minimum of 150 percent of motor horsepower. Provide companion type driven sheaves.
 2. Select drives to provide for 12-1/2 percent variation in speed, plus or minus, from specified speed. Provide all motors with adjustable sheaves except where indicated otherwise in the Specifications or on the Drawings.
 3. Install all fans with adjustable pitch sheaves on their drive motors. Select sheaves to provide air quantities under specified conditions. Put air systems into operation, and determine as a result of the completed air balance the actual size of sheaves required to produce specified air quantities on installed systems. The adjustable pitch sheaves shall then be replaced with the proper size fixed sheaves. Remove adjustable pitch sheaves from premises. Provide fixed motor sheaves manufactured by Wood's.
 4. Where indicated on the Drawings or specified, provide spare motor, bearings, and belts.
- F. Machinery Guards
1. Protect motor drives by guards furnished by the equipment manufacturer or in accordance with the Sheet Metal and Air Conditioning Contractors National Association's Low Pressure Duct Manual. Provide guards of all types approved as acceptable under OSHA Standards.
- G. Equipment Start-up
1. Require each equipment manufacturer to provide qualified personnel to inspect and approve equipment and installation and to supervise the start-up of the equipment and to supervise the operating tests of the equipment.
 2. If a minimum number of hours for start-up and instruction are not stated with the equipment specifications, these shall be 2 full 8-hour working days as a minimum.
 3. Advise Owner of start-up at least 72 hours in advance.

3.07 CLOSEOUT PROCEDURES

- A. General Operating and Maintenance Instructions: Arrange for each installer of operating equipment and other work that requires regular or continuing maintenance, to meet at the site with the Owner's personnel to provide necessary basic instructions in the proper operation and maintenance of the entire Work. Where installers are not expert in the required procedures, include instruction by the manufacturer's representatives.
- B. Where applicable, provide instruction and training, including application of special coatings systems, at manufacturer's recommendation.
- C. Provide a detailed review of the following items:
 1. Maintenance manuals
 2. Record documents and catalog cuts for each piece of equipment.
 3. Spare parts and materials
 4. Tools
 5. Lubricants

6. Fuels
 7. Identification systems
 8. Control sequences
 9. Hazards
 10. Cleaning
- D. Warranties, bonds, maintenance agreements, and similar continuing commitments.
- E. Demonstrate the following procedures:
1. Start-up
 2. Shut-down
 3. Emergency operations
 4. Noise and vibration adjustments
 5. Safety procedures
 6. Economy and efficiency adjustments
 7. Effective energy utilization.
- F. Prepare instruction periods to consist of approximately 50% classroom instruction and 50% "hands-on" instruction. Provide minimum instruction periods as follows:

Systems or Equipment	Training Time (Hours)
Exhaust Fans	4 hours

Note: Consult individual equipment specification sections for additional training requirements.

- G. Prepare a written agenda for each session and submit for review and approval. Include date, location, purpose, specific scope, proposed attendance and session duration.
- H. Record training sessions in digital format, format as selected by the Owner. Turn over digital files to the Owner after training has been completed.

END OF SECTION 230010

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section describes the marking and identification materials for identifying mechanical equipment, ductwork and piping systems.
- B. Mark and identify all mechanical equipment, ductwork and piping systems described herein, and as shown and specified in the Contract Documents.

1.02 REFERENCES

- A. ANSI A13.1 - Scheme for the Identification of Piping Systems.
- B. Z53.1 - Safety Color Code for Marking Physical Hazards.
- C. OSHA 29 CFR 1910 - Subpart J, General Environmental Controls

1.03 SUBMITTALS

- A. Identification Scheme - Submit scheme of identification codes.
- B. Steam Trap Schedule - Submit steam trap schedules listing proposed steam trap number, location, type, sizes and service.
- C. Valve Schedules - Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- D. Samples - Submit samples of tags, attachments, labeled and identified.
- E. Equipment Schedules - Submit mechanical equipment schedules, listing proposed equipment numbers, and their location and function.
- F. Product Data: Provide manufacturers catalog literature for each product required.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Seton
- B. Bunting
- C. W.H. Brady Company

2.02 MECHANICAL EQUIPMENT MARKERS

- A. Identify all mechanical equipment, bare or insulated, installed in the rooms or on the roof, by means of lettered and numbered nameplate (not stenciled) identifying the equipment and service. Refer to the Drawings for equipment identifications. Nameplates shall be aluminum with permanent 1 ½ inch high white letters on a black background, mechanically affixed and installed in a readily visible location on the equipment. Coordinate the final equipment designation with the Owner.

- B. In addition to markers, all mechanical equipment shall be furnished with the manufacturer's identification plate showing the name of equipment, manufacturer's name and address, date of purchase, model number and performance data.

2.03 DUCT WORK IDENTIFICATION

- A. Provide full air distribution system identification at each side of a wall penetration, in a mechanical room, at all changes in direction and at no more than 50 foot intervals. Provide arrows identifying direction of flow.
- B. Fire damper or Smoke damper access points shall be permanently identified on the exterior by a label having letters not less than 0.5 inch in height reading: SMOKE DAMPER or FIRE DAMPER.
- C. Identification shall be preprinted labels.
- D. Letter Size: 1-1/2 inches in height.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Apply piping system markers and valve tags in the following locations:
 1. Adjacent to each valve and fitting.
 2. At each branch location and riser take-off
 3. At each side of a pipe passage through floors, walls, ceiling and partitions.
 4. At each pipe passage to and from underground areas.
 5. Every 20 feet on all horizontal and vertical pipe runs.
- B. Provide arrow markers showing direction of flow incorporated into or adjacent to each piping system marker. Use double-headed arrows if flow is in both directions.
- C. Apply all piping system markers where view is unobstructed; markers and legends shall be clearly visible from operating positions.
- D. Apply all tags and piping system markers in accordance with the manufacturer's instructions. Do not attach tags to valve handle such that the normal or emergency operation of the valve will be hindered.

3.02 SCHEDULES

- A. Pipe Marker Letter Size Schedule:

Outside diameter of insulation or pipe Inches	Letter height Inches	Color field Inches
3/4 to 1-1/4	1/2	8
1-1/2 to 2	3/4	8
2-1/2 to 6	1 - 1/4	12
8 to 10	2 - 1/2	24
Over 10	3 - 1/2	24

MECHANICAL SYSTEM IDENTIFICATION
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END OF SECTION 230555

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This section specifies requirements for testing, adjusting, and balancing of all air distribution systems, including the equipment and devices associated with each system.
- B. The work includes setting speed and flow, adjusting equipment and devices installed for systems, recording data, conducting tests, preparing and submitting reports, and recommending modifications to the mechanical installations specified in other Sections of the Specifications.

1.02 RELATED WORK

- A. Drawings and general provisions of the Contract, including General Conditions, any Supplemental Conditions and Division 1 Specification Sections, govern the work of this section.

1.03 SUBMITTALS

- A. Submit proof that the testing, adjusting and balancing agency meets the requirements of Section 1.04 "Quality Assurance", and all other specified requirements.
- B. Prior to performing the work, submit sample blank forms of the test reports that will be submitted by the entity performing work of this Section, indicating all data and parameters included.
- C. Submit certified test reports, signed by the authorized representative of the testing and balancing agency. Certify the reports to be proof that the systems have been tested, adjusted and balanced in accordance with the selected reference standards (NEBB or AABC); are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at completion of the testing, adjusting and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Submittal of test report shall be in the following format:
 - 1. Draft Report: Upon completion of testing, adjusting and balancing procedures, prepare draft reports on the approved forms. Draft report may be handwritten, but must be complete, factual, accurate and legible. Organize and format draft reports in the same manner specified herein for the final reports. Submit two complete sets of draft reports. Only one complete set of draft reports will be returned.
 - 2. Final Report: Upon verification and approval of draft reports, prepare final reports, type written and organized and formatted as described herein. Submit two complete sets of final reports.
 - a. Report Format: Submit reports using the standard forms prepared by the referenced standard for each respective item and system to be tested, adjusted and balanced. Include schematic systems diagrams. Enclose the report contents in a 3-ring binder. Divide the contents into the below listed divisions, separating them by divider tabs with titles descriptive of the contents:
 - 1) General Information and Summary.
 - 2) Air Systems.
 - b. Report Contents: Provide the following minimum information, forms and data:
 - 1) General Information and Summary: Identify the testing, adjusting and balancing Agency, Contractor, Owner, Architect/Engineer, and Project on the inside cover sheet. Include addresses, and contact names and telephone numbers. Include a certification sheet containing the seal and name, address, telephone number

and signature of the Agency's responsible certified Test and Balance Engineer. Include in this division a listing of the instrumentation used for the procedures, along with the proof of calibrations.

- 2) Include in the remainder of the reports the appropriate forms containing, as a minimum, the information indicated on the standard report forms prepared by AABC or NEBB, for each item of equipment and system. Prepare a schematic diagram for each item of equipment and system, to accompany each respective report form.
- c. Calibration Reports: Submit proof that all required instrumentation has been calibrated to tolerances specified in the referenced standards within a period not exceeding six months prior to conducting the test procedures.
- d. Existing Systems: Where existing systems are to be added to or modified include in the report results of operational tests taken prior to modifications including but not limited to existing fan curves, pressure readings and flow measurements. Include in the report copies of the equipment and motor nameplate data along with equipment performance curves indicating operating points prior to any modifications and, where existing equipment is retained, operating points after system balance. Where terminals are adjusted or modified include terminal performance curves/data and final readings.

1.04 QUALITY ASSURANCE

- A. Test, adjust and balance systems and equipment by using competent mechanics regularly employed by a testing, adjusting and balancing Subcontractor whose primary business is the testing, adjusting and balancing of building mechanical systems. The testing, adjusting and balancing Subcontractor shall be a business established for a minimum of 10 years.
- B. The testing, adjusting, and balancing Subcontractor shall be certified by the Associated Air Balance Council (AABC) or the National Environmental Balancing Bureau (NEBB).
- C. Instrumentation type, quantity, and accuracy shall be as described in AABC's "National Standards for Field Measurement and Instrumentation, or Total System Balance, or NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems."
- D. All instrumentation shall be calibrated at least every 6 months or more frequently if required by the instrument manufacturer.

1.05 PERFORMANCE REQUIREMENTS

- A. Comply with all applicable Federal, State and Local laws, ordinances, regulations and codes, and the latest industry standards including, but not limited to the entities listed below for procedures, measurements, instruments and test reports for testing, adjusting and balancing work:
 1. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
 2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
 3. National Environmental Balancing Bureau (NEBB)
 4. Associated Air Balance Council (AABC)
- B. Set the air delivery or intake of each diffuser, grille and register to be as designed or within five percent of the air flow rates shown on the Drawings.
- C. Set the fan air flow rate and static pressure rise across the fan to be within 10 percent above the design value at design speed.

1.06 JOB CONDITIONS

- A. Require the testing and balancing specialist to review his work with the respective manufacturers of the equipment and devices involved, and coordinate and schedule all work.
- B. Furnish and install balancing dampers, pressure taps, gauges, and other components as required for a properly balanced system, whether or not specified herein or shown on the Drawings, all at no additional cost to the Owner. Make all adjustment or replacement parts recommended by the testing and balancing specialist in strict accordance with the respective equipment manufacturer's recommendations.
- C. Coordinate with the control manufacturer's representative to set the adjustment of the automatically operated dampers to operate as required.

1.07 GENERAL

- A. The Owner will occupy the building during the entire testing, adjusting, and balancing period. Cooperate with the Owner during testing, adjusting, and balancing operations to minimize conflicts with the Owner's operations.
- B. Complete all tests specified herein to the satisfaction of the Architect/Engineer before final acceptance.
- C. The Architect/Engineer, or his representative, is the sole judge of the acceptability of the tests. The Architect/Engineer may direct the performance of any such additional tests, as he deems necessary in order to determine the acceptability of the systems, equipment, material and workmanship. No additional payment will be made for any test required by the Architect/Engineer.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Obtain design drawings and specifications and become thoroughly acquainted with the design intent.
- B. Obtain copies of approved shop drawings of all air handling equipment, air outlets (supply, return and exhaust), and the temperature control diagrams, including intended sequence of operations.
- C. Existing Systems: Where existing systems are to be added to or modified perform operational tests prior to modifications including but not limited to existing fan curves, pressure readings and flow measurements.
 - 1. Obtain copies of the equipment and motor nameplate data along with equipment performance curves indicating operating points prior to any modifications. Where terminal units are to be adjusted or modified obtain performance data for these units.

- D. Examine installed work and conditions under which testing is to be done to ensure that work has been completed, cleaned, and is operable. Do not proceed with testing, adjusting and balancing until unsatisfactory conditions have been corrected in a manner approved by the testing and balancing specialist.
- E. Examine the air systems to see that they are free from obstructions. Determine that all dampers and registers are open, moving equipment is lubricated, clean filters are installed, and automatic controls are functioning; and perform other inspections and maintenance activities necessary for proper operation of the systems.
- F. Where existing systems are to be modified or added to ensure that all filters are clean and any operational problems that will prevent system balance have been brought to the attention of the Owner and repaired.

3.02 TESTING, ADJUSTING AND BALANCING

- A. Notify the Owner 48 hours in advance of starting any tests. Do not perform any tests until acknowledgment of notification and approval has been received from the Owner.
- B. Provide all necessary instruments and personnel for the tests. If, in the opinion of the Architect/Engineer, the results of such tests show that the Work has not complied with the requirements of the Contract Documents, make all additions or changes necessary to put the system in proper working condition and pay all expenses for all subsequent tests which are necessary to determine whether the Work is satisfactory. Any additional work or subsequent tests shall be carried out at the convenience of the Architect/Engineer.
- C. Test all packaged equipment in strict accordance with the equipment manufacturer's requirements.
- D. Perform any and all other tests that may be required by the local municipality or other governing body, board or agency having jurisdiction.
- E. Perform testing, adjusting, and balancing after leakage and pressure tests on air distribution systems have been satisfactorily completed.
- F. Actuate all safety devices in a manner that clearly demonstrates their workability and operation.
- G. Cut insulation and ductwork for installation of test probes to the minimum extent necessary to allow adequate performance of test procedure.
- H. Perform tests and compile test data for all air systems.
- I. Include a schematic diagram locating the air inlets, outlets, fans, equipment, dampers and regulating devices for air systems.
- J. All instruments used shall be provided by the entity performing the Work of this Section, and shall be accurately calibrated and maintained in good working order.
- K. Air Systems
- L. Perform the testing, adjusting and balancing of air systems in accordance with the detailed procedures outlined in the referenced standards; including but not be limited to the following:

1. Test, record and adjust fan rpm to design requirements.
2. Test and record motor full load amperes.
3. Make a pitot tube traverse of main supply ducts and obtain design flow rate at fans.
4. Test and record system static pressure, velocity pressure and total pressure.
5. Test and adjust system for design supply, transfer and return air flow rate.
6. Test and adjust system for minimum and maximum design flow rates of outside air.
7. Test and record return air temperatures.
8. Test and record coil and fan leaving air temperatures.
9. Adjust all main supply, return, relief, and exhaust air ducts to proper design flow rate.
10. Adjust all zones to proper design flow rate for supply, return, transfer, relief and exhaust air.
11. Test and adjust each diffuser, grille and register.
12. Identify each grille, diffuser and register as to location and area on the schematic diagram.
13. Identify and list in the final report size, type and manufacturer of diffusers, grilles and registers and all tested equipment. Use manufacturer's data on all equipment to make required calculations for testing, adjusting and balancing. Include design required velocity and test resultant velocity, required flow rate and test resultant flow rate after adjustment as part of readings and tests of diffusers, grilles and registers.
14. Adjust all diffusers, grilles and registers to minimize drafts in all areas.
15. Permanently mark all dampers after air balance is complete so that they can be restored to their correct position, if disturbed later.
16. Seal openings in ductwork for pitot tube insertion with snap-in plugs after air balance is complete.

END OF SECTION 230594.12

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PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The work specified as part of this Section consists of the integration of equipment controls supplied as part of manufactured items, materials and equipment required by the Drawings and under Divisions 23 and 26 to achieve operational and coordinated Sequences of Operation as Specified. Work shall include management of the system start up and operational check out, coordination of functions of controllers supplied as part of equipment packages, sizing of control valves and damper operators for dampers, interconnection of systems, provision and installation of all accessory devices required for complete system operation including dampers, control valves and actuators not provided as part of equipment, coordination of start up and testing and demonstration of the operation of Sequences of Operation to the Owner and his representatives.

1.02 RELATED SECTIONS

- A. The General Conditions of the Contract, Supplementary Conditions, and General Requirements are a part of these Specifications and shall be used in conjunction with this Section as a part of the Contract Documents. Consult them for further instructions pertaining to this work. The Contractor is bound by the provisions of Division 00 and Division 01.
- B. The following Sections constitute related work:
 1. Section 230010 - General Mechanical Requirements
 2. Equipment and Systems specified under Division 23
 3. Division 26

1.03 QUALITY ASSURANCE

- A. System Installer Qualifications
 1. The Integrator shall have a minimum of five years experience in the integration of systems of a similar nature to those of this Project.
 2. The Integrator shall have an office within 50 miles of the project site and provide 24-hour response in the event of a customer call.
- B. Codes and Standards: Meet requirements of all applicable standards and codes, except when more detailed or stringent requirements are indicated by the Contract Documents, including requirements of this Section.
 1. Underwriters Laboratories: Products shall be UL-916-PAZX listed.
 2. National Electrical Code - NFPA 70.
- C. All products used in this installation shall be new, currently under manufacture, and shall have been applied in similar installations for a minimum of 2 years. This installation shall not be used as a test site for any new products unless explicitly approved by the Owner's representative in writing prior to bid date. Spare parts shall be available for at least 5 years after completion of this Contract.

1.04 SUBMITTALS

- A. Submit at the time of bid the name and qualifications of the firm that will be responsible for the Integration function along with the qualifications of the specific personnel proposed. The Owner and Architect/Engineer may choose to interview the personnel proposed for the project.

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- B. Contractor shall provide shop drawings and manufacturer's standard specification data sheets on all materials and hardware to be provided. No work may begin on any segment of this project until the Architect/Engineer and Owner have reviewed submittals for conformity with the Drawings and Specifications. All shop drawings shall be provided to the Owner electronically as .dwg or .dxf file formats.
- C. Submit a written sequence of operation for each system indicating which functions are to be controlled by controls provided as part of manufactured equipment and which functions will be under control of devices provided as part of this Section.
- D. Submit interconnecting wiring diagrams for all systems. These diagrams may rely on diagrams for controls of manufactured equipment provided that the interface points are clearly identified and copies of the manufactured item's control diagrams are submitted for information as part of the submittal package.
- E. Submit any additional information or data which is deemed necessary to determine compliance with these specifications or which is deemed valuable in documenting the system to be installed.
- F. Submit the following within 30 days of contract award:
 - 1. A work plan and schedule for the start up and check out of all systems including time requirements and resources required from all Sub-Contractors involved.
 - 2. A complete list of equipment to be used indicating quantity, manufacturer and model number.
 - 3. A schedule of all control valves including the valve size, model number (including pattern and connections), flow, CV, pressure rating, and location.
 - 4. A schedule of all control dampers. This shall include the damper size, pressure drop, manufacturer and model number.
 - 5. Provide manufacturers cut sheets for major system components. When manufacturer's cut sheets apply to a product series rather than a specific product, the data specifically applicable to the project shall be highlighted or clearly indicated by other means. Each submitted piece of literature and drawings shall clearly reference the specification and/or drawing that the submittal is being submitted to cover.
 - 6. The submittals required under this Section shall be considered as For Information Only. Review by the Architect/Engineer shall not relieve the Contractor from the responsibility of providing fully operational systems.

1.05 WARRANTY

- A. Warrant all work as follows:
 - 1. Labor & materials for control system specified shall be warranted free from defects for a period of twelve (12) months after final completion acceptance by the Owner. Control System failures during the warranty period shall be adjusted, repaired, or replaced at no charge or reduction in service to the Owner. The Contractor shall respond to the Owner's request for warranty service within 24 hours during customary business hours.
 - 2. At the end of the final start-up/testing, if equipment and systems are operating in a manner satisfactory to the Owner and Architect/Engineer, the Owner shall sign certificates certifying that the control system's operation has been tested and accepted in accordance with the terms of this Specification. The date of Owner's acceptance shall be the start of warranty.

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PART 2 - PRODUCTS

2.01 STANDARD OF QUALITY AND PERFORMANCE

- A. Products specified are not intended to form a complete scope of supply. They are intended to set a level of quality for items that the Contractor may need to supply to implement a complete Sequence of Operation. Products of a comparable quality and performance may be submitted for approval by the Architect/Engineer.

2.02 MOTORIZED DAMPERS

- A. Dampers shall be modulating double-acting opposed blade or parallel blade dampers as required, designed and tested in accordance with AMCA 500. Obtain and verify the location, size and pressure rating of each damper prior to fabrication and delivery. Verify the layout of equipment and ductwork before dampers are fabricated. Pressure drop shall not exceed 0.03 inches water gauge static pressure at 1000 fpm in the fully-open position, and shall be rated for at least 2000 fpm average velocity. Damper shut-off pressure rating shall exceed the fan maximum total head-pressure.
- B. Dampers shall be constructed of extruded aluminum or at least No. 16 gauge galvanized steel, with each blade being not more than 8 inches; wide damper frame channel shall be at least 5 inches deep. Each blade end shall have a 3/8 inch stainless steel or plated steel shaft rotating in self-lubricating bearings mounted in a damper channel frame. Blades mounted vertically shall be supported by thrust bearings. Control shaft shall be at least 1/2 inch diameter.
- C. Flat-steel damper blades shall be made rigid by folding the edges. Blades shall have interlocking edges and shall be provided with EPDM or neoprene compressible seals at point of contact. Foam seals are not acceptable. Provide compression-type stainless steel jamb seals continuously along blade edges.
- D. Each damper shall be assembled in the manufacturer's shop as a complete unit. Dampers, when closed, shall be guaranteed by the manufacturer not to leak in excess of 20 cfm per square foot at 4 inches w.g. static pressure. Provide dampers with operators having sufficient power to limit leakage to the rate specified.
- E. Damper seals shall be suitable for an operating range of minus 20 degrees F (or 20 degrees F below the heating outside design temperature, whichever is lower) at the lower end to 200 degrees F at the upper end.
- F. A complete damper assembly shall have blades no longer than 48 inches and no higher than 48 inches. Where greater length or height is required, the assembly shall be made of a combination of sections. Dampers shall be sized for the required air velocity and pressure classification.
- G. Approved Manufacturers Arrow Damper & Louver or approved equal.

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PART 3 - EXECUTION

3.01 GENERAL WORKMANSHIP

- A. Install equipment, piping, wiring/conduit parallel to building lines (i.e. horizontal, vertical, and parallel to walls) wherever possible.
- B. Provide sufficient slack and flexible connections to allow for vibration of piping and equipment.
- C. Install all equipment in readily accessible location as defined by Chapter 1 Article 100 part A of the NEC. Control panels shall be attached to structural walls unless mounted in equipment enclosure specifically designed for that purpose. Panels shall be mounted to allow for unobstructed access for service.
- D. Verify integrity of all wiring to ensure continuity and freedom from shorts and grounds.
- E. All equipment, installation, and wiring shall comply with acceptable industry specifications and standards for performance, reliability, and compatibility and be executed in strict adherence to local codes and standard practices.

3.02 WIRING

- A. All control and interlock wiring shall comply with the national and local electrical codes and Division 26 of these Specifications. Where the requirements of this Section differ with those in Division 26, the requirements of this Section shall take precedence.
- B. Do not install Class 2 wiring in conduit containing Class 1 wiring. Do not use boxes and panels containing high voltage for low voltage wiring except for the purpose of interfacing the two (e.g. relays and transformers).
- C. Control wiring located in a plenum space that is not installed in a conduit shall be plenum rated.
- D. All wire-to-device connections shall be made at a terminal block or terminal strip. All wire-to-wire connections shall be at a terminal blocks, or with a crimped connector. All wiring within enclosures shall be neatly bundled and anchored to permit access and prevent restriction to devices and terminals.
- E. Maximum allowable voltage for control wiring shall be 120V. Provide and install step down transformers.
- F. All wiring shall be installed as continuous lengths, where possible. Any required splices shall be made only within an approved junction box or other approved protective device.
- G. Maintain fire rating at all penetrations in accordance with other Sections of this Specification and local codes.
- H. Size of conduit and size and type of wire shall be the design responsibility of the Contractor, in keeping with the manufacturer's recommendations and the NEC.

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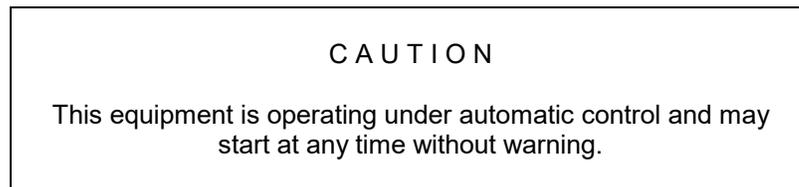
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- I. Locate control and status relays in designated enclosures only. These relays may also be located within packaged equipment control panel enclosures. These relays shall not be located within Class 1 starter enclosures.
- J. Follow manufacturer's installation recommendations for all communication and network cabling. Network or communication cabling shall be run separately from other wiring.
- K. Adhere to Division 26 requirements for installation of raceway.
- L. Maintain an updated (as-built) wiring diagram with terminations identified at the job site.
- M. Flexible metal conduits and liquid-tight, flexible metal conduits shall not exceed 3feet in length and shall be supported at each end. Flexible metal conduit less than 1/2" electrical trade size shall not be used. In areas exposed to moisture liquid tight, flexible metal conduits shall be used.

3.03 WARNING LABELS

- A. Affix plastic labels on each starter and equipment automatically controlled. Label shall indicate the following:



3.04 IDENTIFICATION OF HARDWARE AND WIRING

- A. All wiring and cabling, including that within factory-fabricated panels, shall be labeled at each end within 2 inches of termination with a cable identifier and other descriptive information.
- B. Permanently label or code each point of field terminal strips to show the instrument or item served.
- C. Identify control panels with minimum 1-cm letters on laminated plastic nameplates.
- D. Identify all other control components with permanent labels. Identifiers shall match record documents. All plug-in components shall be labeled such that removal of the component does not remove the label.

3.05 CLEANING

- A. The Contractor shall clean up all debris resulting from his or her activities daily. The contractor shall remove all cartons, containers, crates, etc. under his control as soon as their contents have been removed. Waste shall be collected and placed in a location designated by the Construction Manager or General Contractor.

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- B. At the completion of work in any area, the Contractor shall clean all of his/her work, equipment, etc., making it free from dust, dirt and debris, etc.
- C. At the completion of work, all equipment furnished under this Section shall be checked for paint damage, and any factory finished paint that has been damaged shall be repaired to match the adjacent areas. Any metal cabinet or enclosure that has been deformed shall be replaced with new material and repainted to match the adjacent areas.

3.06 PROTECTION

- A. The Contractor shall protect all work and material from damage by his/her work or workers, and shall be liable for all damage thus caused.
- B. The Contractor shall be responsible for his/her work and equipment until finally inspected, tested, and accepted. The Contractor shall protect his/her work against theft or damage, and shall carefully store material and equipment received on site that is not immediately installed. The Contractor shall close all open ends of work with temporary covers or plugs during storage and construction to prevent entry of foreign objects.

3.07 FIELD QUALITY CONTROL

- A. All work, materials and equipment shall comply with the rules and regulations of applicable local, state, and federal codes and ordinances as identified in Part 1 of this Section.
- B. Contractor shall continually monitor the field installation for code compliance and quality of workmanship. All visible piping and or wiring runs shall be installed parallel to building lines and properly supported.
- C. Contractor shall arrange for field inspections by local and/or state authorities having jurisdiction over the work.

3.08 ACCEPTANCE

- A. The control systems will not be accepted as meeting the requirements of completion until all tests described in this Specification have been performed to the satisfaction of both the Engineer and Owner.
- B. The full range of operation for all Sequences of Operation shall be demonstrated. Where sequences are dependent on season or outside conditions these conditions may be simulated for the purpose of demonstration if approved by both the Architect/Engineer and the Owner. If simulations cannot be acceptably created the Contractor shall perform the demonstration during the proper period.
- C. Any tests that cannot be performed due to circumstances beyond the control of the Contractor may be exempt from the Completion requirements if stated as such in writing by the Owner's representative. Such tests shall then be performed as part of the warranty.

END OF SECTION 230991

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The Work specified as part of this Section consists of the work required to achieve operational and coordinated Sequences of Operation as described. Work includes coordination of functions of controllers supplied as part of equipment packages, sizing of control valves, interconnection of systems, provision and installation of all accessory devices required for complete system operation including devices not provided as part of equipment, coordination of start up and testing and demonstration of the operation of Sequences of Operation to the Owner and his representatives.
- B. The control system operation of all equipment shall be subject to the operational modes, conditions and logic described in this Section and the controlled equipment manufacturer's recommendations.
- C. Training of the Owner's personnel in the operation, trouble shooting, adjustment and repair of all system controls.

1.02 RELATED SECTIONS AND WORK

- A. Section 230923 - Automatic Temperature Controls and Building Automation System
- B. Division 26
- C. Owner's Building Management System (BMS)
- D. Owner's Fire Alarm System (FAS)

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL

- A. General
 1. Conform to the requirements of the Owner's standards for all electrical work and devices.
 2. System and system components shall be BACNet compatible.
 3. All set points and operating points shall be able to be transmitted to and set from the BMS system. Specific points to be enabled shall be at the discretion of the Owner.
 4. All systems shall be capable of operating independently of the BMS system based on set points and limits either input from the BMS system or manually.
 5. Coordinate all work with the requirements and characteristics of the BMS system and the equipment provided for the project under this phase or earlier phases.
 6. All space sensors and thermostats shall have an lcd display indicating their set point, the condition sensed and the mode of operation they are responding to.
 7. All equipment to be integrated with the BMS shall be fully integrated with new or existing facility controls and devices including interlocks, icons, graphics, read-outs and reports."

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3.02 SEQUENCE OF OPERATION - EXHAUST FANS, EF-X

A. General:

1. The exhaust fan shall run during occupied school hours on a timeclock based upon when the unit ventilator outside air dampers are open.

END OF SECTION 230993

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section describes the galvanized steel, flexible, and aluminum ductwork for HVAC duct systems in accordance with SMACNA Duct Construction Standards, except as otherwise specified.
- B. The construction material for each ductwork system shall be as listed in the "Ductwork Material Schedule" at the end of this Section.
- C. This Section also describes the fittings, access doors, hangers and supports, manual volume dampers and sealants for each ductwork system as required.

1.02 RELATED WORK

- A. Section 230594 - Balancing of Air and Hydronic Systems.

1.03 REFERENCES

- A. ASHRAE - Handbook Fundamentals; Latest Edition.
- B. SMACNA - HVAC Duct Construction Standards Metal And Flexible (latest issue)
- C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- D. ASTM B 209 - Specifications for Aluminum and Aluminum-Alloy Sheet and Plate.
- E. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- F. UL 555 S - Fire Dampers & Smoke Dampers.
- G. NFPA 96 - Standard for Commercial Cooking Operations
- H. New York State Mechanical Code.

1.04 REGULATORY REQUIREMENTS

- A. Construct ductwork to NFPA 90A and New York State Mechanical Code standards.

1.05 SUBMITTALS

- A. Ductwork shop drawings for approval:
 - 1. Coordinate layout duct drawings that differ from ductwork shown on the Drawings.
 - 2. The review of deviations will be for pressure drop only. The review will not address clearances or accessibility to maintain or balance the air systems. No dimensional or coordination check of the shop drawings will be made. The Contractor has the sole responsibility to review the Drawings, coordinate ductwork fabrication, and provide clearances and access for installation, maintenance and balancing of this work, and work of other trades. Unless specifically dimensioned, Drawings indicate approximate locations only. The Contractor has the sole responsibility to locate and route the ductwork.

3. Deviations such as changing direction or transforming or dividing ductwork must maintain ductwork cross-sectional area and not exceed transformation taper of 15 degrees.
 4. Plans and section showing all equipment and accessories.
 5. Minimum 3/8 in. scale, double line, showing sizes, transverse joints, transitions, elevations, clearances and accessories; sections where required.
- B. Shop details and catalog cuts of:
1. Ductwork construction, including gauge and bracing schedule.
 2. Supports.
 3. Dampers.
 4. Turning vanes.
 5. Fire dampers.
 6. Access doors.
 7. Flexible connections.
 8. Other accessories.

1.06 QUALITY ASSURANCE

- A. Construct all ductwork in accordance with referenced SMACNA Standards, except as otherwise stated. Ductwork pressure classifications shall be in accordance with referenced SMACNA Standards, except as otherwise specified.
- B. For all uninsulated ductwork casings and plenums located outdoors, the reinforcement members shall be galvanized steel or stainless steel.
- C. Construction pressure classification of ductwork are shown on the Drawings. If not shown, the pressure classification shall be greater than or equal to the maximum operating static pressure (minimum 2" w.c. pressure classification).
- D. All ductwork shall be free from pulsation, chatter, vibration and objectionable noise. If any of these defects appear after a system is in operation, correct by removing and replacing, or reinforcing the ductwork, at no additional cost to the Owner.
- E. For all galvanized steel ductwork, zinc coating shall be minimum G90 per ASTM A 653.

PART 2 - PRODUCTS

2.01 GALVANIZED STEEL RECTANGULAR DUCTS AND FITTINGS

- A. Construct ducts of galvanized sheet steel meeting ASTM A 653 with G90 coating designation, and in accordance with the latest SMACNA HVAC Duct Construction Standards Metal And Flexible and pressure classifications as stated on the Drawings (minimum 2" w.c. pressure classification).
- B. No ducts shall be less than No. 22 U.S. Gauge.
- C. Piping, conduit and structure shall not penetrate ductwork. Where this condition cannot be avoided and with the written permission of the Architect/Engineer, follow SMACNA HVAC Duct Construction Standards Metal and Flexible, except that sides of transition sections shall slope a maximum of 15 degrees.
- D. Provide 90-degree full-radius elbows with a centerline radius 1.5 times the duct width in the plane of the bend.

- E. For elbows with centerline radius less than 1.5 times the width of the duct in the plane of the bend, provide turning vanes.
- F. Provide square throat elbows with manufactured turning vanes.
- G. All dissimilar metals shall be connected with flanged joints made up with fiber or neoprene gaskets to prevent contact between dissimilar metals. Flanges shall be fastened with bolts protected by ferrules and washers made of the same materials as the gaskets.
- H. For split fittings, the split shall be proportional to the air flow. Construct per SMACNA HVAC Duct Construction Standards- Metal and Flexible.
- I. Transitions and Offsets shall follow SMACNA HVAC Duct Construction Standards Metal and Flexible, except that sides of transitions shall slope a maximum of 15 degrees.
- J. All branch take-offs perpendicular to the main shall be a 45 degree entry.
- K. Longitudinal seams shall be of the Pittsburgh Lock type outlined in the SMACNA HVAC Duct Construction Standards Metal and Flexible.
- L. Duct transverse joints shall be selected and used consistent with the static pressure class, applicable sealing requirements, materials involved, duct support intervals and other provisions for proper assembly of ductwork outlined in the SMACNA HVAC Duct Construction Standards - Metal and Flexible. Transverse joints T-25a, T-25b (Ductmate) shall only be used. Metal clips will only be allowed (NO PVC). Ductmate shall not be used for the following (use transverse joints T-15 through T-24 in these cases):
 1. The Ductmate '45' system shall not be used for applications with duct gauges heavier than 10 or lighter than 22.
 2. The Ductmate '35' system shall not be used for applications with duct gauges heavier than 16 GA. or lighter than 26 GA.
 3. The Ductmate '25' system shall not be used for application with duct gauges heavier than 20 GA. or lighter than 26 GA.

2.02 TURNING VANES

- A. Manufactured with same material as ductwork that it is installed in and to the same pressure classification as ductwork that they are installed in.
- B. Provide turning vanes in all square duct elbows and as noted on the Drawings.
- C. Vanes shall be single thickness Small Vane as detailed in SMACNA HVAC Duct Construction Standards Metal and Flexible.
- D. Where a rectangular duct changes in size at a square-throat elbow fitting, use single thickness turning vanes with trailing edge extensions aligned with the sides of the duct.

2.03 ACCESS DOORS

- A. For access doors for use in ductwork receiving Fire Rated Blanket Insulation see Ductwork Insulation Section for requirements. Fabricate all other access doors in accordance with SMACNA Duct Construction Standards Metal And Flexible and as indicated.

- B. For HVAC duct systems, construct doors of the same material as the ductwork. Minimum size of access doors shall be 8 inches by 8 inches, unless shown otherwise.
- C. Provide walkthrough doors where shown. These doors shall have a minimum clear width of 18 inches. Provide doors with 8 inch square double pane wire glass windows. Locate windows not to exceed 5 feet-6 inches to centerline above finished floor of installed casing. Walk-through doors shall be operable from both sides of the door.
- D. Access doors shall be insulated same as duct.
- E. Provide with continuous neoprene gaskets around perimeter of access doors for airtight seal.
- F. Provide all access doors with cam lock latches.
- G. Provide access doors with watertight gaskets in shower room exhaust ductwork. Doors shall be of extra-heavy stainless construction.
- H. All access doors serving a fire damper shall be painted red and shall have a label with white letters not less than ½ inch high reading "FIRE DAMPER". No external ductwork insulation shall conceal a fire damper access door unless there is a label attached to the insulation indicating the exact location of the access door.
- I. Provide access doors in following locations:
 - 1. Heaters and coils in ducts: entering and leaving side.
 - 2. Automatic dampers: linkage side.
 - 3. Fire damper, on both sides of ducts.
 - 4. Smoke detection heads.
 - 5. On both sides of ducts where necessary to provide maintenance accessibility to equipment on either side.
 - 6. VAV boxes
 - 7. Heating and Cooling coils.
 - 8. Fan Plenums.
 - 9. In-Line Fans (suction and discharge sides)
 - 10. Other items requiring access for service/maintenance
- J. Where duct access doors are concealed the Contractor shall furnish and pay for installation of access doors to be mounted in the fire rated walls and ductwork enclosures. The access doors must be fire resistive and minimum 6" larger on each side then the duct access door for the above mentioned applications.

2.04 MANUAL VOLUME DAMPER

- A. Fabricate in accordance with SMACNA Duct Construction Standards Metal And Flexible, and as indicated.
- B. Fabricate single blade dampers for duct sizes up to 6 inches in height.
- C. Fabricate multi-blade damper of opposed blade pattern with maximum blade sizes of 4 inches for ducts above 6 inches in height. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.

- D. Except in round ductwork 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon or sintered bronze bearings.
- E. Provide locking, indicating quadrant regulators on single and multi-blade dampers. Where rod lengths exceed 30 inches, provide regulator at both ends.
- F. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.
- G. Volume damper shall be provided at each duct branch and also where shown on the Drawings. Volume dampers must be installed at each branch even if they are not shown on the Drawing.
- H. Approved Manufacturers:
 - 1. Ruskin Mfr. Co.
 - 2. Arrow Damper & Louver.
 - 3. Imperial Damper Co.

2.05 DUCT TEST HOLES

- A. Cut or drill temporary test holes in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.
- B. Permanent test holes shall be factory fabricated, air tight flanged fittings with screw cap. Provide extended neck fittings to clear insulation.

2.06 DUCT HANGERS AND SUPPORTS

- A. Provide trapeze, strap or angle iron hangers meeting SMACNA HVAC Duct Construction Standards Metal and Flexible.
- B. Materials of hangers, supports and fasteners shall conform to the manufacturer's load ratings.
- C. Hangers, supports, upper attachments and inserts shall be hot-dip galvanized steel or stainless steel.
- D. Fasteners for HVAC duct systems shall be hot-dip galvanized steel, cadmium-plated steel or stainless steel.
- E. Secure ductwork hangers attached to concrete structures and slabs with embedded inserts, anchor bolts or concrete fasteners. A safety factor of 5 should be used in selection of all inserts and expansion bolts (if applicable safety factor shall be determined by analysis of seismic loads and the greater safety factor shall be used).
- F. Provide hangers and supports not more than 12 inches from each face of a horizontal elbow.
- G. Plenums shall be supported to permit personnel to enter the plenum. If no structural steel design is shown on the Drawings, it is the responsibility of the Contractor to provide the services of a licensed structural engineer in the in which the project is to be constructed to submit a structural design for review.

2.07 SEALANTS

- A. Where ducts are not continuously welded or soldered, provide sealants and gaskets as required to meet the specified duct leakage allowance.
- B. Provide Gaskets, Sealers, Mastics and Tapes as manufactured by Ductmate.

2.08 STANDARD FLEXIBLE CONNECTIONS

- A. Provide fabric flexible duct connections.
- B. Fabric shall be UL approved, fire-retardant, closely-woven glass, double coated with neoprene, and a minimum of 4 inches wide.
- C. Shall be installed at duct connections to all ceiling hung fans and where vibration will be transmitted through ductwork.
- D. Approved Manufacturers:
 - 1. "Ventglas" by Vent Fabrics, Inc.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Install ductwork in accordance with applicable SMACNA Duct Construction Standards Metal And Flexible and approved submittals, and as shown on the Drawings. Duct sizes shown are inside clear dimensions. Where internal duct liners are used, duct sizes shown are inside clear of liner. For ductwork located outside, provide reinforcing sufficient to support wind and snow loads.
- B. The Drawings indicate general locations of ducts. Make additional offsets or changes in direction as required at no additional cost to the Owner.
- C. Wherever ductwork is divided, maintain the cross-sectional area.
- D. Do not exceed 15-degree taper when constructing duct transitions.
- E. Close the open ends of ducts during construction to prevent debris and dirt from entering.
- F. Secure casings and plenums to curbs according to the requirements of the SMACNA HVAC Duct Construction Standards Metal and Flexible.
- G. Make changes in direction with long radius bends.
- H. All unused portions of HVAC supply air and exhaust louvers shall be blanked off with Louver Blank Off Panels, see Ductwork Insulation Section.
- I. All welded and scratched galvanized steel surfaces shall be touched up with zinc-rich paint.
- J. 2 Hr. rated wall penetration: Where small size duct (up to 6 inches x 6 inches) is penetrating a 2 Hr wall the duct shall be constructed of 16 gauge galvanized sheet metal.

- K. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- L. Patch and repair all wall penetrations.
- M. Insulation: Where Drawings and Specifications indicate that ducts are to be insulated make provisions for neat insulation finish around damper operating quadrants, splitter adjusting clamps, access doors, and similar operating devices. Metal collar equivalent in depth to insulation thickness and of suitable size to which insulation may be finished to be mounted on duct.

3.02 FITTING INSTALLATION

- A. Use minimum of four sheet metal screws per joint.
- B. Apply approved sealant on duct-to-duct joint before assembly. Apply additional sealant after assembly to make joint airtight.

3.03 HANGER AND SUPPORT INSTALLATION

- A. Support ductwork hung from building structure using trapeze, strap or angle iron hangers conforming to SMACNA HVAC Duct Construction Standards Metal and Flexible. Provide supplemental structural steel to span joists where required.
- B. Do not support ductwork from furring, hung ceilings, metal floor deck, metal roof deck or from another duct or pipe.
- C. Do not hang lighting fixtures or piping from ductwork.
- D. Do not use perforated band iron.
- E. Support ductwork at each change in direction.
- F. Where duct connects to or terminates at masonry openings or at floors where concrete curbs are not used, provide a continuous 1 ½ inch by 1 ½ inch by 3/16 inch galvanized steel angle support around the ductwork. Bolt and seal the supports to the building construction using expansion bolts and caulking compound. Seal shall be watertight at floor or wall and duct such that a spill will no pass down through the opening.
- G. Fasten plenums and casings connected to concrete curbs using continuous 1 ½ inch by 1 ½ inch by ¼ inch galvanized steel angle support. Set the angle support in a continuous bead of caulking compound and anchor it to the curb with 3/8 inch diameter anchors on 16 inch centers. Terminate sheet metal at curb and bolt to angle support. Seal sheet metal to curb with a continuous bead of caulking.
- H. For insulated ductwork, install hangers on the outside of the insulation. To maintain the insulation value, inset a piece of 1 inch thick, 6 pcf fiberglass board with a foil/scrim/kraft (FSK) jacket at these supports.

3.04 SEALING

- A. Where ductwork is not continuously welded, soldered or gasketed, make seams and joints airtight with sealants.
- B. Install the sealants in accordance with the sealant manufacturer's instructions and recommendations.
- C. Seal all ductwork seams, joints, fastener penetrations and fittings connections with sealants in accordance with SMACNA Seal Classifications as required by SMACNA Duct Pressure Classification. All ductwork, regardless of pressure classification, shall have a minimum Seal Class B.
- D. Completely fill all voids when liquid sealing ductwork. Several applications may be necessary to fill voids caused by shrinkage or runout of sealant.

3.05 DUCT-MOUNTED DEVICES AND ACCESS DOORS

- A. Install all dampers, coils, airflow measuring stations, humidifiers and other duct-mounted devices, specified in other sections of the specifications or as shown and provide transformations to dimensions as required. Install devices in accordance with manufacturer's recommendations. Install dampers and coils a minimum of 4 feet away from changes in direction or transitions. Allow five (5) equivalent diameters of straight ductwork upstream and one (1) equivalent diameter of straight ductwork downstream of airflow measuring devices.
- B. Install access doors in ductwork, plenums and where specified and as shown. Provide access doors for inspection and cleaning automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 18 x 18 inch size for shoulder access and as indicated. Install access doors in the bottom of the ductwork unless they are inaccessible in this location; then install the access doors in either the side or top of the ductwork, whichever is more accessible.
- C. Provide fire damper at locations indicated, and where outlets pass through fire rated components and where required by authorities having jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway, duct connections, corrosion resistant springs, bearings, bushings and hinges.
- D. Demonstrate re-setting of fire dampers to authorities having jurisdiction and Engineer.
- E. Provide flexible connections immediately adjacent to equipment in ducts associated with motorized equipment. Cover connections to medium pressure fans with leaded vinyl sheet, held in place with metal straps.
- F. Pilot Ports: Locate pilot ports for measuring airflow in each main supply duct at the downstream end of the straightest run of the main and before the first branch take-off. Form pilot ports by drilling 7/16 inches holes in the duct, lined up perpendicular to airflow on maximum 8-inch centers and at least three to a duct, evenly spaced. Holes to be plugged with plastic plugs. Provide access to these for future rebalancing.

3.06 DUCTWORK AND EQUIPMENT LEAK TESTING

- A. Leak test each ductwork system within ten working days of ductwork installation and before ductwork is insulated and concealed.

- B. All HVAC ductwork shall be tested. Follow general procedures and use apparatus as outlined in the SMACNA HVAC Air Duct Leakage Test Manual.
- C. Test all ductwork at 100 percent of the pressure classifications indicated.
- D. Air testing during erection shall include separate leakage air tests of air riser, horizontal distribution system, and, after all ductwork is installed and the central stations apparatus is erected, leakage testing of the whole system.
- E. Use Appendix C in the SMACNA HVAC Air Duct Leakage Test Manual to determine allowable leakage rates for each duct section tested.
- F. All devices, including access doors, airflow measuring devices, sound attenuators, damper casings, sensors, test ports, etc. that are furnished and/or installed in duct systems shall be included as part of the duct system leakage allowance. All joints shall be inspected and checked for audible leakage, repaired, if necessary, and retested. Duct leakage shall be limited to the following:

Average Size of Run Diameter or Equivalent	*A/100 ft. Run
12 inches or less	10
20 inches or less	15
30 inches or less	25
40 inches or less	30
50 inches or less	30
* (A) = Permissible loss in cfm	

- G. Total system leakage shall not exceed 10 percent of the scheduled design capacity of the system when tested as per SMACNA testing methods.

3.07 PAINTING

- A. Upon completion of the installation, remove all protecting materials, thoroughly remove all scale and grease and leave in a clean condition for painting. Ductwork to be painted shall be as shown on the Drawings. Painting shall be in accordance with the requirements of the "Painting" Specification Section.

3.08 DUCTWORK MATERIAL SCHEDULE

AIR SYSTEM	DUCTWORK MATERIAL
Supply, Outside Air & Exhaust Ductwork	Galvanized Steel

END OF SECTION 233113

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide exhaust fans, as specified herein, of sizes and capacities scheduled and in locations shown on drawings.

1.02 REFERENCE CODES AND STANDARDS

- A. AMCA 99 - Standards Handbook
- B. AMCA 210 - Laboratory Methods of Testing Fans for Rating
- C. AMCA 300 - Reverberant Room Method for Sound Testing of Fans
- D. ASHRAE Handbook, HVAC Applications Volume "Sound and Vibration Control"
- E. UL listed and labeled.

1.03 SUBMITTALS

- A. Shop Drawings - Show fan layout, housing, materials, gauges, dimensions, weights and installation details
- B. Product data - Manufacturer's fan performance (data includes cfm, rpm, bhp, motor nameplate data, tip speed, outlet velocity and static pressure) and sound performance (data includes sound power level ratings by octave bands) as tested in accordance with AMCA Standards 210 and 300.
- C. Fan performance curves - Submit curves for all fans with system performance shown, and for plus or minus 10 percent and plus or minus 20 percent change in fan rpm. Curves shall include plotted rpm, horsepower, cfm, static pressure, and fan surge line and operating point.
- D. Certified AMCA Ratings - Submit ratings for air and sound performance.
- E. UL Listing - Submit listing if specified.

1.04 QUALITY ASSURANCE

- A. Factory balance each fan statically and dynamically, test run before shipment, and key fan wheel to fan shaft. Fans shall operate quietly and without pulsation or vibration. Conduct sound power level tests for each type fan at the factory in accordance with AMCA 300.
- B. Fans shall operate in the stable range of their performance curves.
- C. The fan external static pressures shown in the schedules are those required by the ductwork and apparatus, and do not include the internal and intake fan losses, inlet vanes or integral outlet dampers, inlet screens, outlet velocity heads or drive losses.
- D. Factory performance test each fan assembled in or as part of apparatus specified to be performance tested. Test shall display scheduled performance characteristics, using certified, calibrated testing instruments provided by the manufacturer of the apparatus.

- E. All fan performance ratings shall be based up on factory tests performed in accordance with AMCA 210. One fan of each type specified shall have actual factory performance tests performed prior to shipment. All fans shall be certified by AMCA and carry its seal.

PART 2 - PRODUCTS

2.01 CENTRIFUGAL DOWNBLAST FANS

- A. Roof mounted exhaust fans shall be of the downblast direct drive type.
- B. The fan housing shall fan housing shall consist of the motor cover, shroud, curb cap and lower windband, and shall be constructed of heavy-gauge aluminum. Housing shall have a rigid internal support structure and leakproof design. The fan shroud shall be one-piece with a rolled bead for extra strength, which directs exhaust air downward. The low windband shall be one piece with formed edges for added strength and the curb cap shall include prepunched mounting holes to ensure correct attachment to the roof.
- C. The fan wheel shall be centrifugal, non overload, backward-inclined, constructed of aluminum and shall include a wheel cone carefully matched to the inlet cone for precise running tolerances. Wheels shall be statically and dynamically balanced.
- D. Motors shall be permanently lubricated and carefully matched to the fan loads. Motors shall be readily accessible for maintenance. Motors shall be mounted on true vibration isolators, out of the airstream. Each vibration isolator shall be sized to match the weight of each fan.
- E. A NEMA 1 disconnect switch shall be provided as standard. Factory wiring shall be provided from motor to the handy box.
- F. All fans shall bear the AMCA Certified Ratings Seal for both sound and air performance.
- G. Each fan shall bear a permanently affixed manufacturer's nameplate containing the model number and individual serial number for future identification.
- H. Fans shall be manufactured by Greenheck or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install fans, including all necessary structural supports and bracing as scheduled and located on the contract drawings in accordance with manufacturer's instructions and approved submittals.
- B. Connect duct to fans to allow for straight and smooth air flow.
- C. Provide flexible connections (minimum of 4") between fan and duct.
- D. Install fan level: +/- 5 degrees vertical. Final installation shall be free of all leaks from both fan and associated ductwork.

3.02 START-UP, TESTING, DEMONSTRATION

- A. Start-up fans after checkout to insure proper alignment and phased electrical connections.

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- B. Test fans individually and as part of system.
- C. Insure fans are properly interlocked with supply fans and with control system.
- D. Demonstrate operation to Owner and instruct maintenance personnel in operation of equipment.

END OF SECTION 233416

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section describes the air terminals as specified herein, with capacities, distribution patterns and connection sizes as scheduled on the Drawings.
- B. Products listed in Part 2 of this Section include:
 - 1. Grilles and Registers.
 - 2. Ceiling Diffusers.

1.02 RELATED WORK

- A. Section 233113: Sheet Metal Work

1.03 REFERENCES

- A. ADC 1062 GRD - Test Code for Grilles, Registers and Diffusers
- B. ASHRAE 70 - Method of Testing for Rating the Airflow Performance of Outlets and Inlets.
- C. ASHRAE 113 - Method of Testing Room Air Diffusion
- D. ASTM C423 - Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- E. ARI 880 - Air Terminals
- F. ARI 885 - Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets.
- G. NFPA 90A - Installation of Air Conditioning and Ventilation Systems
- H. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.
- I. Mechanical Code of New York State

1.04 QUALITY ASSURANCE

- A. Air Terminals will not be accepted until acoustical test results have been submitted and approved.

1.05 SUBMITTALS

- A. Product data - Submit catalog cuts and installation instructions for all products specified, including standard color samples.
- B. Submit published manufacturer's performance data for all of the different types of diffusers, registers and grilles, based on testing in accordance with ASHRAE Standard 70, latest edition.
- C. Performance data - For each size and type of air terminal , submit the following:
 - 1. Inlet static pressure in inches w.g.
 - 2. Maximum and minimum airflow in cfm.

3. Throw in feet at maximum cfm (and 25 percent of cfm) for terminal velocities of 50 and 100 fpm.
4. Noise Criteria (NC) curve at maximum air terminal cfm rating with blades in full-open and closed positions.

PART 2 - PRODUCTS

2.01 RETURN GRILLES

- A. Furnish and install return grilles of the type and size as shown on the Drawings. Construct the grilles with 45 degree deflection fixed blades and frames that have reinforced mitered corners.
- B. Provide an opposed blade damper operable from the face of the grille for grilles connected to ductwork.
- C. Manufacture grilles with trim to allow for recessed mounting into ceiling grids or for surface mount in other ceiling types. Provide concealed mounting using concealed mounting straps or concealed screw holes in neck. Countersunk screw holes in the frame face are not acceptable or frame face-mounting screws.
- D. Construct the units of extruded aluminum or corrosion resistant steel as shown on the Drawings.
- E. Manufacturer: Nailor Industries Inc, Model Series 6145H-O or approved equal.
- F. Coordinate color with Owner.

PART 3 - EXECUTION

3.01 DIFFUSER, REGISTER AND GRILLE APPLICATION

- A. See the Drawings for types, sizes, materials and installation requirements.

3.02 INSTALLATION

- A. Install diffusers, grilles and registers in locations shown on the Drawings.
- B. Consult the Drawings for type of ceiling in which the terminals are to be installed and match air outlet edge trim to the requirements of the ceiling type in which they are installed.
- C. Install equalizing grids flush with take-off collar connection to supply duct with vanes perpendicular to air flow approaching diffuser.
- D. Install in accordance with manufacturer's published recommendations as well as applicable sections of SMACNA manual and as specified above.
- E. Install ceiling mounted grilles and registers with the blade deflection facing away from the line of sight.
- F. Coordinate with other work, including ductwork and ductwork accessories, as necessary to interface installation of air outlets and inlets with other work

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END OF SECTION 233713

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavation and backfill for electrical work.
- B. Demolition of existing electrical systems.
- C. Secondary power wiring and distribution system.
- D. Lighting, including lamps.
- E. Wiring devices.

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.
 - 9. IBC: International Building Code
 - 10. IFC: International Fire Code
 - 11. IMC: International Mechanical Code
 - 12. IPC: International Plumbing Code
 - 13. IGC: International Fuel Gas Code
 - 14. IEBC: International Existing Building Code

15. ECCC: Supplement to the New York State Energy Conservation Construction Code
16. MPS: Manual of Planning Standards
17. 155: 8 NYCRR 155 Regulations of the Commissioner of Education

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. Electrical Inspectors, Inc., or a pre-approved electrical inspection agency.
 3. Road opening permits.

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 preceding 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. Individually mounted circuit breakers.
- 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 all White Plains High School.
- 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

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
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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
- 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.

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

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- 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.

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

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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

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

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480V/277 Volt 3 phase	208Y/120 Volt 3 phase (NEC)
Phase A Brown	Phase A Black
Phase B Orange	Phase B Red
Phase C Yellow	Phase C Blue
Neutral White	Neutral White
Ground Green	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

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

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GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

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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:
 - 1. OZ ELECTRICAL MANUFACTURING COMPANY, Type "CG" for connection to water main piping and Type "GC" for connection to ground rod; with cable installed parallel or 90 degrees to pipe/rod under separate clamp.
 - 2. 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.

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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

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

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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.

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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

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

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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 - Rigid Galvanized Conduit:
 - a. All exterior circuits above ground.
 - 2. Conduit Use - PVC Sch. 80
 - a. All exterior circuits below ground.
 - 3. Conduit Use - Electrical Metallic Tubing (EMT) Conduit:
 - a. All interior circuits above ground.
 - 4. Conduit Use - Metal Clad (MC) Cable:
 - a. All 15 and 20 amp branch circuits concealed in walls or ceilings.
 - 5. Conduit Use - Flexible Liquid-tight Metal Conduit:
 - a. Connecting motors, generators and other equipment subject to vibration, maximum length - 3 feet.
 - b. Passing through building expansion joints.
 - 6. Surface mounted raceway (Wiremold)
 - a. For use in finished areas on block walls and plaster walls, 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.

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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 RIGID GALVANIZED CONDUIT

- A. Rigid conduit shall be hot dipped, galvanized, or electro-galvanized steel by 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.

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- C. ERICKSON couplings, Series 676 or approved equal, shall be used where neither length of conduit can be rotated.
- D. Conduit connectors shall be threaded type. Set screw and compression type connections ARE NOT acceptable.
- E. Sealing fitting locknuts shall be Series 142SL.
- F. Steel or malleable iron insulated bullet hub, Series 370-379, complete with sealing "O" ring. DO NOT use "die cast" material.
- G. Entrance ells shall be Series 1491 or approved equal.
- H. Combination coupling shall be Series 531 for connecting rigid galvanized conduit to electrical metallic tubing.

2.02 PVC CONDUIT

- A. PVC conduit shall be manufactured by WHEATLAND, TRIANGLE REPUBLIC or approved equal.
- B. Description: NEMA TC 2; Schedule 80 PVC.
- C. Fittings and Conduit Bodies: NEMA TC3.

2.03 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.

2.04 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.

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- D. Armor material shall be Aluminum Interlocked Armor.

2.05 SURFACE MOUNTED RACEWAY (WIREMOLD)

- A. Manufacturer: Wire Mold shall be manufactured by LEGRAND or approved equal.
- B. Model: 700 Series - One-Piece Steel Surface Raceway.
- C. Paint wire mold to match existing wall color.
- D. UL5 and ADA compliant.
- E. UL and cUL Listed.

2.06 DUCT SEAL

- A. RectorSeal or approved equal.
- B. Model #: 81881

2.07 FLEXIBLE LIQUID-TIGHT METAL CONDUITS AND FITTINGS

- A. Liquid-tight flexible metal conduit shall be ANACONDA or approved equal.
- B. Description: Interlocked steel construction with PVC jacket.
- C. Provide flexible liquid-tight conduits and fittings as manufactured by THOMAS & BETTS CORP., O.Z. GEDNEY CO. or approved equal. Catalog numbers used below are those of the THOMAS & BETTS CORP., based on 3/4" size and are to be considered as standards by which equivalents are to be judged. All conduit shall be liquid-tight flexible type, UL type UA, or suitable for exposure to continuous or intermittent moisture.
- D. Flexible liquid-tight connectors shall be Series 5333 or approved equal.

2.08 OUTLET AND DEVICE BOXES

- A. Acceptable Manufacturers: Raco, General Electric or approved equal.
- B. Sheet Metal Outlet Boxes - All concealed boxes shall be NEMA OSI, 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.

2.09 PULL BOXES

- A. Provide Tier 22 traffic loaded pull boxes and Tier 22 traffic loaded covers. Cover shall have logo "ELECTRIC".

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- B. Manufacturer shall be Quazite or approved equal.
- C. Model Number : PG1730 BB24 and HH cover.
- D. Minimum dimensions shall be 17"W x 30"L x 28"D
- E. Grout around all conduits entering/exiting the pull box.
- F. Site plans shows minimum required pul boxes. Provide and install additiona pull boxes as required and by NEC requirements.

2.10 JUNCTION BOXES

- A. Acceptable Manufacturers: RACO, GENERAL ELECTRIC or approved equal.
- B. Sheet metal boxes: NEMA OS1, galvanized steel.
- C. Covers: Galvanized steel.

2.11 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.

2.12 ELECTRICALLY CONDUCTIVE CORROSION-RESISTANT THREAD COMPOUND

- A. KOPR-SHIELD or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION OF CONDUITS

- A. Minimum size of conduits shall be 3/4-inch.
- B. Minimum conduit depth shall be 24" below grade, measured to the top of the conduit on exterior underground installations.
- C. Conduit joints shall be cut square, threaded, reamed smooth, and drawn up tight so conduit ends will butt in couplings, connectors and fittings.
- D. All threaded conduits and fittings shall have KOPR-SHIELD compound applied to all threads prior to assembly.

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- E. Make bends or offsets with standard ells or field bends with an approved bender.
- F. 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.
- G. Secure conduits to all boxes and cabinets with double locknuts and bushings so system will be electrically continuous from service to all outlets.
- H. Install conduit in accordance with NECA Standard of Installation.
- I. Cap ends of conduits to prevent entrance of water and other foreign material during construction.
- J. Complete all conduit systems before pulling conductors.
- K. Support conduits under provisions of Section 260529.
- L. Provide approved expansion joints or fittings and bonding jumpers where conduits in concrete pass through building expansion joints.
- M. Provide cable supports in conduits rising vertically in accordance with the National Electric Code, Article 300-19.
- N. Provide No. 12 AWG copper pull wires or nylon cord in all empty conduits. Steel wire not acceptable as pull wire.
- O. Install conduit to preserve fire resistance rating of partitions and other elements.
- P. Ground and bond conduit under provisions of Section 260526.
- Q. Where neither length of conduit can be rotated, ERICKSON couplings Series 676 shall be used.
- R. 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.
- S. In concrete slabs block up conduit from forms and securely fasten in place. All conduits in slabs shall be installed below concrete slab.
- T. 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.
- U. 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.

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- V. Arrange supports to prevent misalignment during wiring installation.
- W. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- X. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.
- Y. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- Z. Do not attach conduit to ceiling support wires.
- AA. Arrange conduit to maintain headroom and present neat appearance.
- AB. Route exposed conduit parallel and perpendicular to walls.
- AC. Route conduit installed above accessible ceilings parallel and perpendicular to walls.
- AD. Route conduit in and under slab from point-to-point.
- AE. Do not cross conduits in slab.
- AF. Maintain adequate clearance between conduit and piping.
- AG. Maintain 12-inch clearance between conduit and surfaces with temperatures exceeding 104°F (40°C).
- AH. Bring conduit to shoulder of fittings; fasten securely.
- AI. Use conduit hubs with sealing locknuts to fasten conduit in damp and wet locations.
- AJ. 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.
- AK. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- AL. Do not use dissimilar strap or clamp supports. Provide dielectric tape, fittings, straps, and bushings where dissimilar metals are used.
- AM. 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.
- AN. 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.
- AO. Install a copper jumper across all flexible conduit including lighting fixtures, controls and other utilization equipment.

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- AP. Install liquid-tight flexible conduit in such a manner as to prevent liquids from running on surface toward fittings.
- AQ. Allow sufficient slack conduit to reduce the effect of vibration.
- AR. Complete all conduit systems before pulling the conductors.
- AS. 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.

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- 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 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 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.
- F. Coordinate installation of exterior pull boxes with General contractor to establish elevations of finished grades and pavements. All castings shall have chimney adjustment of + 6".

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 electrical closet. Surface mounted conduits shall only be permitted for vertical runs. All horizontal runs shall be installed above finished ceilings.
- C. Surface mounted raceway (wiremold) conduit will only be allowed on finished block walls or on plaster walls, where conduit cannot be run concealed. All horizontal runs shall be installed above finished ceilings, where drop ceilings are located.
- D. All conduit and wiremold shall be primed and painted to match existing adjacent wall color.

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.

2.04 UNDERGROUND WARNING TAPE

- A. Manufacturers:
 - 1. THOMAS & BETTS CORP., Model NAF-0700.
 - 2. Substitutions shall be permitted only after receiving written approval from the Engineer.
- B. Description: 6 inch (150 mm) wide plastic tape, detectable type, colored red with suitable warning legend describing buried electrical lines.

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. Interior luminaries and accessories.
- B. Emergency lighting and units.

1.02 REFERENCES

- A. NEMA WD 6 - Wiring Devices - Dimensional Requirements.
- B. NFPA 70 - National Electric Code.
- C. NFPA 101 - Life Safety Code.
- D. LM-79-08, IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products
- E. LM-80-08, IESNA Approved Method for Measuring Lumen Maintenance of LED Light Sources

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 2.03B of this specification. 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. Two (2) additional fixtures for each type specified listed 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.

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, drivers, transformers, fixture ends, trim rings, plates, and low density mounting kits (as required) for a complete installation.
- E. LENSES:
 - 1. 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, drivers, 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 WARRANTY

- A. All light fixtures shall have a 5-year manufacturer’s warranty. Warranty shall begin on date of substantial completion.

2.04 SUBSTITUTIONS

- A. **SED REQUIRED LIGHT LEVELS**
 - 1. 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]	30
Offices [on desks]	30
Libraries [on desks and tables]	30
Libraries [book stacks]	30
Music rooms [on work]	30
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	30
Auditoriums	10
Conference Rooms	30
Reception Areas	20
Locker rooms and toilets	10

- 2. Contractor shall program all fixtures as per district requirements.
- 3. Contractor shall calibrate fixtures as per district requirements.

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. Replace luminaries that have failed at completion of project.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Remove and dispose of surface debris as required.
- B. Remove and dispose of paving, sidewalk, curbs, etc.
- C. Clear site or designated areas of the site of plant life and grass as required, and dispose of as required.
- D. Remove and dispose of trees and shrubs as required.
- E. Remove and dispose of stumps and root system of trees and shrubs as required.
- F. Removal and storage of topsoil.

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation.
- B. Section 329119.13 - Topsoil Placement and Grading: Placement of stored topsoil.

1.03 REGULATORY REQUIREMENTS

- A. Conform to applicable local code(s) for disposal of debris.
- B. Burning of materials on site is prohibited.
- C. Coordinate clearing work with utility companies.

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

- A. Verify existing conditions.
- B. Identify existing plant life designated to be removed. Verify with Owner and Engineer prior to removal.
- C. Verify limits of clearing.

3.02 PROTECTION

- A. Locate, identify and protect utilities that are to remain from damage.
- B. Protect trees, plant growth and features designated to remain as final landscaping.

- C. Protect benchmarks and existing structures from damage or displacement. Any damage to existing structures is to be promptly repaired at no additional cost to the Owner.

3.03 APPLICATION

- A. Clear areas required for access to site and execution of work.
- B. Remove paving, curbs, debris and sidewalks as required.
- C. Remove trees and shrubs designated to be removed. Remove stumps, main root ball, surface rock and perishable debris.
- D. Clear undergrowth and dead wood without disturbing subsoil.
- E. Remove paving, debris, rock and extracted plant life from site and dispose of in accordance with State and local ordinances.
- F. Excavate topsoil from areas to be further excavated, re-landscaped or regraded. Do not excavate wet topsoil.
- G. Stockpile topsoil in area designated on site to a height not exceeding 8 feet. Protect from erosion. Remove excess topsoil not being reused from site. Do not remove any topsoil from the site prior to obtaining the approval of the Engineer.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Removal and storage of subsoil.
- B. Cutting, grading, filling and rough contouring the site prior to placement of topsoil or pavement base for final grading.

1.02 RELATED SECTIONS

- A. Section 311100 - Site Clearing.
- B. Section 312316 - Excavation - Removal of Unsuitable Soils.
- C. Section 312323.13 - Backfilling - Replacement of Unsuitable Soils.

1.03 REFERENCES

- A. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. Rammer and 18 inch Drop.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Sieve Analysis: Submit a sieve analysis of all types of fill material to be used.

1.05 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of utilities remaining, by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Subsoil: Reused excavated material, graded, free of lumps, rocks and gravel larger than 3 inches in size, debris and contaminants.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify site conditions.
- B. Verify that survey benchmark and intended elevations for the work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours and datum.
- B. Identify known underground, aboveground and aerial utilities. Stake and flag locations.

- C. Coordinate the removal or relocation of utilities with the necessary utility companies.
- D. Protect above and below-grade utilities that are to remain.
- E. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
- F. Protect benchmarks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic.

3.03 APPLICATION

- A. Excavate subsoil from areas to be further excavated or regraded. Do not excavate wet subsoil.
- B. Stockpile in area designated on site. Remove excess subsoil not being reused from site.
- C. Stockpile subsoil to a height not exceeding 8 feet. Cover to protect from erosion.
- D. When excavation through roots is necessary, perform work by hand and cut roots with sharp axe.
- E. Fill areas to contours and elevations with unfrozen subsoil material with allowances made for topsoil, aggregate base course or paving.
- F. Place and compact subsoil fill material in 12 inch lifts (compacted thickness). Compact to 92 percent maximum dry density in accordance with ANSI/ASTM D1557.
- G. Maintain optimum moisture content of fill materials to attain required compaction density.
- H. Make grade changes gradual. Blend slope into level areas.
- I. Remove surplus fill materials from site.

3.04 TOLERANCES

- A. Maximum Variation From Top Surface of Subgrade: 1 inch.

3.05 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Perform tests and analysis of fill material in accordance with ANSI/ASTM D1557.
- C. Perform compaction tests at a rate of one for every 10 cubic yards of material placed.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavation for building foundations.
- B. Excavation for slabs-on-grade, paving and landscaping.
- C. Excavation for site structures.
- D. Site excavation.

1.02 RELATED SECTIONS

- A. Section 312213 - Rough Grading.
- B. Section 312323.13 - Backfill: Backfilling excavated material.

1.03 QUALITY ASSURANCE

- A. Do not excavate wet or frozen materials without written approval from the Engineer.
- B. Provide safety barricades around open excavations.

1.04 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the work are as indicated.

1.05 COORDINATION

- A. Coordinate work under provisions of Section 013100.

PART 2 - PRODUCTS

2.01 NOT USED.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Identify required lines, levels, contours and datum.
- B. Identify known underground, above ground and aerial utilities. Stake and flag locations.
- C. Notify utility company to remove or relocate utilities, if required.
- D. Protect above and below grade utilities which are to remain.
- E. Protect plant life, lawns and other features remaining as a portion of final landscaping.
- F. Protect bench marks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic.

- G. Notify the Engineer prior to commencement of excavation.

3.02 EXCAVATION

- A. Underpin adjacent structures that may be damaged by excavation work, including utilities and pipe chases.
- B. Excavate subsoil required to accommodate landscaping and construction operations to the limits as indicated on the plans.
- C. Machine slope banks to angle of repose or less, until shored.
- D. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- E. Hand trim excavation. Remove loose matter.
- F. Remove lumped subsoil, boulders, and rock.
- G. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- H. Correct unauthorized excavation at no extra cost to Owner in accordance with Section 312323.13.
- I. Stockpile excavated material in area designated on site and remove excess material not being reused from site.

3.03 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Provide for visual inspection of bearing surfaces.

3.04 PROTECTION

- A. Protect work under provisions of Section 015000.
- B. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
- C. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

PART -1 GENERAL

1.01 SECTION INCLUDES

- A. Site structure backfilling to sub-grade elevations.
- B. Site filling and backfilling.
- C. Consolidation and compaction.
- D. Fill for over-excavation.
- E. Environmental testing.

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation.
- B. Section 312213 - Rough Grading.

1.03 REFERENCES

- A. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. Rammer and 18-inch Drop.
- B. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Material Source: Submit name of imported material suppliers.
- C. Provide a letter certifying that each type of imported fill material has been provided by a NYSDEC certified clean fill source or has been tested in accordance with NYSDEC Unrestricted Soil Use Guidelines as defined in Subpart 375-6 Remedial Program Soil Cleanup Objectives.
- D. Test Reports: Submit sieve analysis and test results from NYSDEC Unrestricted Soil Use Guidelines for each type of imported fill to be used.

1.05 PROJECT CLOSEOUT SUBMITTALS

- A. Submit under provisions of Section 017200.
- B. Provide documentation on the contractor's letterhead certifying that all fill material utilized for this project came from approved sources and met the requirements of the NYSDEC Unrestricted Program Soil Use Guidelines.

PART 2 - PRODUCTS

2.01 IMPORTED FILL SOURCE

- A. All imported fill materials shall be provided by a NYSDEC certified clean fill source or meet the requirements of NYSDEC Unrestricted Soil Use Guidelines as defined in Subpart 375-6: Remedial Program Soil Cleanup Objectives.
- B. Test samples of imported fill in accordance with the following table:

Recommended Number of Soil Samples for Imported Soil			
Contaminant	VOC's	SVOC's, Inorganics & PCB's/Pesticides	
Soil Quantity (cubic yards)	Discrete Samples	Composite	Discreet Samples/Composite
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
>1000	Add an additional 2 VOC and 1 composite for each additional 1000 cubic yards or consult with DER		

- C. Provide materials from the same source throughout the work. Change of source requires approval from the Engineer.

2.02 FILL MATERIALS

- A. Coarse Aggregate: Angular crushed or natural stone; washed, free of shale, clay, friable material, sand and debris; graded in accordance with ASTM D2487 Group Symbol GW or GP within the following limits

1. Sieve Size	Percent Passing
a. 1 1/2 inch	100
b. 1 inch	90 - 100
c. 1/2 inch	0 - 15
d. No. 200	0 - 1
- B. Pea Gravel: Natural stone; washed, free of clay, shale, organic matter; graded in accordance with ASTM D2487 Group Symbol GC or GM, within the following limits:
 - 1. Minimum Size: ¼ inch.

- G. Make grade changes gradual. Blend slope into level areas.
- H. Remove surplus backfill materials from site.
- I. Leave fill material stockpile areas completely free of excess fill materials.

3.04 TOLERANCES

- A. Maximum Variation From Top Surface of Backfilling Under Paved Areas: 1/4 inch.
- B. Maximum Variation From Top Surface of General Backfilling: 1 inch.

3.05 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Perform field tests and analysis of fill material in accordance with ANSI/ASTM D1557.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.
- D. Unless additional testing is required by the Engineer, compaction tests shall be taken at the following rates:
 - 1. Pavement Subgrade: One test per 5,000 square feet of subgrade immediately prior to placing subbase.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Synthetic Turf Base Course

1.02 RELATED SECTIONS

- A. Section 312213 - Rough Grading
- B. Section 312316 - Excavation
- C. Section 321823.29 - Synthetic Infill Turf

1.03 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. Rammer and 18-inch Drop.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Test Reports: Submit sieve analysis for each type fill to be used.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

- A. Base Course - Coarse Stone: Angular, washed natural stone; free of shale, clay, friable material, sand, debris; graded in accordance with ANSI/ASTM C136 within the following limits

SIEVE SIZE	PERCENT PASSING
2 INCHES	100
1 INCH	75-100
3/4 INCH	65-95
1/2 INCH	55-85
1/4 INCH	25-65
1/8 INCH	15-60
NO. 20	0-40
NO. 40	0-10
NO. 80	0-6
NO. 200	0-5

- B. Finish Course - Crushed Stone: Angular, washed natural stone; washed, free of clay, shale, friable material, sand debris; graded in accordance with ANSI/ASTM C136

Sieve Size	Percent Passing
1/2 inch	100

3/8 inch	85-100
1/4 inch	75-100
1/8 inch	60-90
No. 20	35-75
No. 40	0-40
No. 80	0-8
No. 200	0-2

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions and substrate.

3.02 PREPARATION

- A. Compact base course to 92 percent maximum dry density in accordance with ANSI/ASTM D1557.
- B. Cut out soft areas of base course not capable of in situ compaction. Backfill and compact to density equal to or greater than requirements for subsequent backfill material.
- C. Remove all topsoil and organic material.

3.03 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy materials.
- C. Place and compact fill material in 12 inch lifts (compacted thickness).
- D. All backfilled materials shall be compacted to 92 percent maximum dry density in accordance with ANSI/ASTM D1557. Maintain optimum moisture content to attain required density.
- E. Employ a placement method that does not disturb or damage structures or other items against which material is backfilled.
- F. Backfill against supported structures.

3.04 TOLERANCES

- A. Maximum Variation for base course: 1/2 inch.
- B. Maximum variation for finish course: 1/4 inch in 10 ft.

3.05 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Perform field tests and analysis of fill material in accordance with ANSI/ASTM D1557.

- C. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

- D. Unless additional testing is required by the Engineer, compaction tests shall be taken at the following rates:
 - 1. Synthetic turf field Subgrade: One test per 5,000 square feet of subgrade immediately prior to placing base course.
 - 2. Base Course: One test per 5,000 square feet of base course immediately prior to placing finish course.
 - 3. Finish Course: One test per 5,000 square feet of base course.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavate trenches for piping and utilities.
- B. Compacted bedding and backfill around and over piping and utilities to subgrade elevations.
- C. Backfilling and compaction.

1.02 RELATED SECTIONS

- A. Section 312213 - Rough Grading: Topsoil removal from site surface.

1.03 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18-inch Drop.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Test Reports: Submit a sieve analysis for backfill to be used.

1.05 QUALITY ASSURANCE

- A. Do not excavate wet or frozen materials without written approval from the Engineer.
- B. Do not backfill over or with wet or frozen materials.
- C. Provide safety barricades around open excavations.

1.06 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the work are as shown on plans.

1.07 COORDINATION

- A. Coordinate work under provisions of Section 013100.
- B. Coordinate trenching with installation of pipe or conduit.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Subsoil: Reused, excavated material, graded, free of lumps, rocks and gravel larger than 3 inches in size, debris and contaminants.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing site conditions and substrate.
- B. Verify fill materials to be reused are acceptable.
- C. Verify items to be buried during backfilling process have been inspected prior to backfilling.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Maintain and protect existing utilities remaining which pass through work area.
- C. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
- D. Protect benchmarks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic. Any item damaged by the contractor shall be promptly repaired at the contractor's expense.
- E. Protect above and below grade utilities which are to remain.
- F. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with subsoil fill and compact to density equal to or greater than requirements for subsequent backfill material.

3.03 EXCAVATION

- A. Excavate subsoil required for piping.
- B. Cut trenches to the dimensions shown on the plans.
- C. Excavation shall not interfere with normal 45 degree bearing splay of foundations.
- D. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- E. Remove lumped subsoil, boulders, and rock.
- F. For trenches made in solid rock, excavate to a depth of 1 foot below the proposed pipe invert.
- G. Correct unauthorized excavation at no cost to Owner in accordance with Section 312323.13.
- H. Stockpile excavated material in area designated on site and remove excess material not being used from site. Remove excavated material from site.

3.04 BACKFILLING

- A. Support pipe and conduit during placement and compaction of fill material.
- B. For trenches made in solid rock, place an additional 1 foot of fill material under pipe or conduit.

- C. Place fill material to the dimensions and limits as shown on the plans.
- D. Place and compact fill material in 12 inch lifts (compacted thickness) for depths greater than 2 feet and 6 inch lifts (compacted thickness) for depths less than 2 feet. Compact to 92 percent maximum dry density in accordance with ANSI/ASTM D1557.
- E. Place fill material simultaneously on both sides of the pipe or conduit. Backfill to the dimensions and limits shown on the plans with reused subsoil.
- F. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- G. Place and compact material in continuous layers not exceeding 6 inches compacted depth.
- H. Employ a placement method that does not disturb or damage conduit or pipe.

3.05 TOLERANCES

- A. Maximum Variation From Top Surface of Backfilling Under Paved Areas: 1/4 inch.
- B. Maximum Variation From Top Surface of General Backfilling: 1 inch.

3.06 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Perform field tests and analysis of fill material in accordance with ANSI/ASTM D1557.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.
- D. Unless additional testing is required by the Engineer, compaction tests shall be taken at the springline of the pipe and after each lift at 100 foot intervals along the pipe run.

3.07 CLEANING

- A. Remove surplus backfill materials from site.
- B. Leave fill material stockpile areas completely free of excess fill materials.

3.08 PROTECTION

- A. Protect finished work under provisions of Section 015000.
- B. Recompact fills subjected to vehicular traffic.

END OF SECTION

RECYCLED CONCRETE AGGREGATE BASE COURSE

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Recycled concrete aggregate base course.

1.02 RELATED SECTIONS

- A. Section 312323.13 – Backfilling.
- B. Section 312333 – Trenching.

1.03 REFERENCES

- A. ANSI/ASTM C88 - Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
- B. ANSI/ASTM C136 - Sieve Analysis of Fine and Coarse Aggregates.
- C. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18-inch Drop.
- D. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Test Reports: Submit a sieve analysis for the aggregate base course used.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Do not handle aggregate in any manner which will cause segregation of large or fine particles.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aggregate Base Course: At least 95% by weight, of angular, crushed, recycled concrete; free of organic matter and deleterious material; graded in accordance with ANSI/ASTM C136 within the following limits:

1. Sieve Size	Percent Passing
2. 2 inches	90-100
3. 1/4 inch	30-65
4. No. 40	5-40
5. No. 200	0-10

- B. The material may contain up to 5% by weight of asphalt and/or brick.
- C. Material retained on the 1/2 inch sieve is coarse aggregate.

RECYCLED CONCRETE AGGREGATE BASE COURSE

H2M

WHITE PLAINS CITY SCHOOL DISTRICT HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

- D. Coarse aggregate shall not have more than 10 percent by weight of flat or elongated pieces. A flat or elongated piece is defined as being three times greater in the largest dimension as compared to its least dimension.
- E. The portion of the aggregate base course which passes the No. 40 screen shall have a plasticity index of one as tested in accordance with ASTM D4318.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions and substrate.
- B. Verify elevations of subgrade are as indicated on the plans.
- C. Verify that subgrade is properly compacted and ready to receive work of this section.
- D. Beginning work of this section means acceptance of existing conditions.

3.02 PREPARATION

- A. Fine grade and compact subgrade to 95 percent maximum dry density in accordance with ANSI/ASTM D1557.

3.03 AGGREGATE PLACEMENT

- A. Spread course aggregate over prepared subgrade to a total compacted thickness as indicated on the plans.
- B. Place aggregate in 3 inch layers and compact by roller.
- C. Level and contour surfaces to elevations and gradients indicated.
- D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- E. Compact placed aggregate materials to achieve 95% maximum dry density in accordance with ANSI/ASTM D1557. Maintain optimum moisture content to attain required density.
- F. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- G. Use mechanical vibrating tamping in areas inaccessible to compaction equipment.
- H. New pavement must be placed on the properly compacted aggregate base course within 24 hours of final compaction. If aggregate base course is left open for more than 24 hours, re-compact and retest in accordance with ANSI/ASTM D1557.

3.04 TOLERANCES

- A. Maximum Variation From Flatness: 1/4 inch measured with 10 foot straight edge.

RECYCLED CONCRETE AGGREGATE BASE COURSE

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

B. Maximum Variation From Scheduled Compacted Thickness: 1/4 inch.

C. Maximum Variation from True Elevation: 1/4 inch.

3.05 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Section 014500.

B. Perform compaction testing in accordance with ANSI/ASTM D1557.

C. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

D. Frequency of Tests: One test per 500 sq ft. immediately prior to paving.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Reinforced concrete curb.
- B. Formwork.

1.02 RELATED SECTIONS

- A. Section 312213 - Rough Grading.

1.03 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.
- C. ASTM A615 - Deformed and Plain Billet Steel for Concrete Reinforcement.
- D. ASTM C33 - Concrete Aggregates.
- E. ASTM C94 - Ready Mix Concrete.
- F. ASTM C150 - Portland Cement
- G. ASTM C260 - Air-Entraining Admixtures for Concrete.
- H. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
- I. ASTM C494 - Chemical Admixtures for Concrete.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide data on joint filler, admixtures and curing compounds.
- C. Supplier: Submit name of concrete supplier prior to the placement of any concrete on the project.
- D. Design Data: Provide a design mix for concrete to be used on the project.
- E. Certificates: Submit receipts of all concrete deliveries, indicating source, date, contractor, amount of concrete, concrete strength, truck number and time truck load was batched.
- F. Testing Firm: Submit name of testing firm to be performing tests on concrete.

1.05 PROJECT RECORD DOCUMENTS

- A. Accurately record locations of each day's concrete pours.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Obtain concrete only from approved suppliers and maintain the same source throughout the project.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver concrete in accordance with ASTM C94, Alternative No. 2.
- B. Place all concrete within 90 minutes of time load was batched.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Do not place concrete when base surface temperature is less than 40 degrees, or if surface is wet or frozen.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement: ASTM C150, Type 1 Portland, gray color.
- B. Aggregates: ASTM C33.
- C. Water: Potable and not detrimental to concrete.
- D. Reinforcement: ANSI A615 steel; 60 ksi yield grade; deformed billet steel bars; epoxy finish.
- E. Dowels: ASTM A615 steel; 60 ksi yield grade; plain steel, epoxy finish.

2.02 ACCESSORIES

- A. Steel Forms: Minimum 16 gauge thick, stiffened to support weight of concrete with a minimum deflection.
- B. Wood Forms: Douglas Fir species; solid, sound, undamaged sheets; minimum 2 inches (50 mm) thick.
- C. Joint Filler: ANSI/ASTM D1751; 1/2 inch thick.
- D. Air Entraining Admixture: ASTM C260.
- E. Chemical Admixture: ASTM C494, type as required.
- F. Curing Compound: ASTM C309, Type 1, Class A.
- G. Form Release Agent: Colorless material which will not stain concrete or absorb moisture.
- H. Joint Sealant: ASTM C920, Type S, Grade NS; NP-1 by Sonneborn or equal.

2.03 MIXES

- A. Concrete shall be mixed and prepared in accordance with the approved mix design and ASTM C94, Alternative No. 2.
- B. The mix shall be such that the concrete shall attain the following characteristics:
 - 1. Compressive Strength (28 days): 4,000 psi.
 - 2. Slump: 2½ to 3½ inches.
 - 3. Air Entrainment: 6% ±1%.
- C. Use chemical admixtures only when approved by the Engineer. Use of admixtures will not relax placement requirements.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions and substrate.
- B. Verify datum and all elevations are as indicated on the plans.
- C. Verify compacted granular subbase has been properly prepared and is ready to receive work of this section.
- D. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

- A. Excavate to the required depth and compact surface.
- B. Place and secure forms to correct location, dimension and profile.
- C. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- D. Moisten base to a minimum depth of 1/2 inch to minimize absorption of water from fresh concrete.
- E. Coat forms with form release agent.

3.03 INSTALLATION

- A. Place joint filler vertical in position and at equal spaces not exceeding 20 feet. Secure to formwork during concrete placement.
- B. Place dowels through joint filler as indicated on the plans. One end of dowel is to be greased or set in a capped sleeve to allow longitudinal movement.
- C. Place reinforcement as indicated on the plans. Interrupt at expansion joints.
- D. Place concrete in accordance with ACI 301.
- E. Ensure reinforcement, dowels, joint filler or forms are not disturbed during concrete placement.

- F. Place concrete continuously between construction joints. Do not break or interrupt successive pours such that cold joints occur.
- G. Vibrate concrete adjacent to forms.
- H. After concrete sets, but prior to curing, remove front forms without damaging concrete and apply a light broom finish to the top and face of the curb.
- I. Place curing compound on exposed surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.04 FIELD QUALITY CONTROL

- A. Field inspection and testing shall be performed under provisions of Section 014500.
- B. Take six concrete test cylinders for every 50 cu. yds. or fraction thereof of concrete placed each day.
- C. Cure test cylinders on site under same conditions as curb.
- D. Take one slump test for each set of cylinders taken.
- E. Concrete not meeting slump requirements will be rejected.
- F. Concrete represented by cylinders which do not meet required strength will be removed and replaced at no additional cost to the Owner.

3.05 PROTECTION

- A. Protect finished work under provisions of Section 015000.
- B. Immediately after placement, protect curb from premature drying, excessive temperatures, rain and mechanical injury.
- C. Protect curb from damage until project is accepted by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Painted pavement delineation.
- B. Painted pavement symbols.

1.02 RELATED SECTIONS

- A. Section 321216 - Asphaltic Concrete Paving.

1.03 REFERENCES

- A. New York State Department of Transportation Standard Specifications.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide data on paint.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Deliver all materials to the site in their original containers.
- C. Store all materials in a cool, dry place.
- D. Do not expose paint to open flames or temperatures which may ignite the paint.
- E. Store all materials such that the paint is not contaminated.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply paint when the ambient temperature is below 40 degrees F.
- B. Do not apply paint to wet or frozen surfaces or when precipitation is occurring.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Paint: Flexible, non-skinning paint; homogeneous, conforming to the requirements of Section 640 of the New York State Department of Transportation Standard Specifications; color as indicated on the plans or directed by Engineer.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that pavement is ready to receive work of this section.

- B. Beginning of application means applicator accepts existing conditions.

3.02 PREPARATION

- A. Remove all dirt, grease, oil or other foreign matter from pavement which might affect the bond between the pavement and the paint.
- B. Remove all temporary pavement markings without causing damage to the pavement.

3.03 APPLICATION

- A. Apply paint with spray type striping machines to achieve a dry film thickness of 14 mils to 16 mils at the locations and to the dimensions as indicated on the plans.
- B. Symbols may be rolled or brushed onto the pavement as long as a dry film thickness of 14 mils to 16 mils is achieved.
- C. All stripes and symbols shall have clean, sharp edges.

3.04 TOLERANCES

- A. Maximum offset from true position: 1 inch.

3.05 CLEANING

- A. Clean adjacent areas which received paint during work of this section.

3.06 PROTECTION

- A. Protect finished work under provisions of Section 015000.
- B. Protect painted markings from damage or discoloration until project is accepted by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Synthetic Infill Turf

1.02 RELATED SECTIONS

- A. Section 312323.16 - Backfill-Synthetic Turf Base Course
- B. Section 116833.13 - Football Field Equipment

1.03 REFERENCES

- A. FM P7825 - Approval Guide; Factory Research Corporation; current edition
- B. ASTM D1577 - Standard Test Method for Linear Density of Textile Fiber
- C. ASTM D5848 - Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Coverings
- D. ASTM D418 - Standard Test Method for Testing Pile Yarn Floor Covering Construction
- E. ASTM D1338 - Standard Test Method for Tuft bind of Pile Yarn Floor Coverings
- F. ASTM D1682 - Standard Test Method for Breaking Load and Elongation of Textile Fabrics
- G. ASTM D1682 - Standard Test Method for Breaking Strength and Elongation of Textile Fabrics(grab test)
- H. ASTM F1015-03 - Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing surfaces
- I. ASTM D4491-99a - Standard Test Method for Water Permeability of Geotextiles by Permittivity
- J. ASTM D2859-06 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials
- K. ASTM F355-01 - Standard Test Method for Shock-Absorbing Properties of Playing Surfaces
- L. ASTM F1936-98 - Standard Test Method for Shock-Absorbing Properties of North American Football Field Playing Systems as Measured in the Field
- M. ASTM D1557 - Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
- N. 2003 NCAA Football Rules and Interpretations
- O. National Federation of State High School Associations

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.

- B. Two (2) 6" x 6" samples
- C. A letter and specification sheet certifying that the products of this section meet or exceed specified requirements.
- D. Certified copies of independent (third party) laboratory reports on ASTM tests as follows:
 - 1. Pile Height, Face Width and total fabric weight, ASTM D418 or D5848
 - 2. Primary and Secondary Backing Weights, ASTM D418 or D5848
 - 3. Tuft Bind, ASTM D1335
 - 4. Grab Tear Strength, ASTM D1682 or D5034
 - 5. Pill Burn Test ASTM D2859
- E. List of existing installations, including Owner representative and telephone number.
- F. Resume of installation Supervisor who will be present on site during installation.
- G. A copy of insured, non-prorated warranty and insurance policy information.
- H. Shop Drawings indicating the field layout, field marking plan, details for the specified sports, roll/seaming layout, methods of attachment, field openings and perimeter conditions.
- I. The turf manufacturer must submit the fiber manufacturer's name, type of fiber, and composition of fiber.
 - 1. Submit certification from the manufacturer that lead or lead chromate is not used in the manufacture of the turf.
 - 2. Submit a statement from the manufacturer that the life cycle of the turf will meet or exceed a period of fifteen (15) years.
- J. Prior to final acceptance the Contractor shall submit to the Owner:
 - 1. Three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the turf system, including painting and markings.
 - 2. Project Record Documents: Record actual locations of seams, drains or other pertinent information.
 - 3. Warranty: Submit Manufacturer Warranty and ensure that forms have been completed in Owner's name and registered with Manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Deliver all materials to project site in wrapped condition.
- C. Store all materials under cover and elevated above grade.

1.06 QUALIFICATIONS

- A. Manufacturer's qualifications: Company specializing in manufacturing products specified in this section. The Turf Manufacturer and/or Turf Contractor:
 - 1. Must be experienced in the manufacture and installation of this specific type of synthetic infill grass system for at least five (5) years with the same manufacturer, product and

- company they are proposing for this field. This includes the tuft fiber, the backing coating, and the installation method.
2. Must have installed a minimum of 10 fields of 65,000 square feet or more in the United States in the past two years with the same manufacturer, product and company, including the exact same infill system, fiber and fiber manufacturer that is being proposed for this field.
- B. Installer: Company specializing in performing the work specified in this section.
1. The turf contractor must provide competent workmen skilled in this specific type of synthetic grass installation.
 2. The designated Supervisory Personnel on the project must be certified, in writing by the turf Manufacturer, as competent in the installation of the material, including sewing seams and proper installation of the infill mixture
 3. The Manufacturer shall have a representative on site to certify the installations and warranty compliance.
- C. Prior to the beginning of installation, the Installer of the synthetic turf shall inspect the sub-base and accept in writing the sub-base surface planarity and compaction. The Installer shall have the dimensions of the field and locations for markings measured by a licensed surveyor registered in the state of New York to verify conformity to the specifications and applicable standards. A record of the finished field as-built measurements shall be made.
- D. The turf Contractor shall provide the necessary testing data to the Owner that the finished field meets the required shock attenuation, as per ASTM F1936.

1.07 WARRANTY

- A. The warranty coverage shall not be prorated nor shall it place limits on the amount of the field's usage.
- B. The Field Builder shall submit its written company warranty: 12-year warranty (8-year plus 4-year supplemental warranty), which warrants the usability and playability of the artificial turf system for its intended uses. A third party insured 8-year warranty from an "A-" Rated domestic insurance carrier is required in addition to the Field Builder's warranty. Letters of credit in lieu of an insurance policy are not acceptable.
- C. The Field Builder's warranty must have the following characteristics:
1. Provide full coverage for a minimum of twelve (12) years from the date of Substantial Completion.
 2. Warrant materials and workmanship.
 3. Warrant that the materials installed meet or exceed the system specifications.
 4. Repair or replace such portions of the installed materials that are no longer serviceable to maintain a serviceable and playable surface.
 5. Be from a single source covering workmanship and all materials.
 6. Assure the availability of exact or substantially the same replacement materials for the artificial turf system installed for the full warranty period.
 7. Include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism and acts of God beyond the control of the Turf Manufacturer or Field Builder.
 8. Cover defects in the installation and workmanship. Assure the installation was done in accordance with both the Field Builder's recommendations and any written directives of the Field Builder's on-site representative.

9. Shall be limited to repair or replacement of the affected areas at the option of the Field Builder, and shall include all necessary materials, labor, transportation costs, etc. to complete said repairs.
 10. The Field Builder may be required, upon the request of the Owner, to provide a list of ten (10) clients for which they have completed after-the-sale warranty work.
 11. All designs, game markings and layouts shall conform to all currently applicable National Federation State High School Association or NCAA rules and regulations, or league specific requirements, depending on what applies.
 12. All components and Field Builder's installation method shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified, shall withstand full climatic exposure in the location of the field, be resistant to insect infestation, rot, fungus and mildew; it shall also withstand ultra-violet rays and extreme heat, it shall allow the free flow of water horizontally to perimeter areas and vertically to the gravel blanket and into the field drainage system below the surface.
 13. The adhesive bonded or sewn seams of all system components shall provide a permanent, tight, secure and hazard-free athletic playing surface. All inlaid markings (game lines, logos, etc.) shall remain in place throughout the duration of the warranty period.
 14. The installed artificial turf system's drainage capability shall allow water flow through the system (turf & infill) at a rate of not less than 10 inches +/- per hour
- D. The Manufacturer's Warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of God beyond the control of the owner or the manufacturer.
- E. The turf Manufacturer's Warranty must be supported by an insurance policy for the full eight (8) year period.
- F. The turf contractor shall provide a Warranty to the owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the Manufacturer's recommendations and any written directives of the Manufacturer's onsite representative.
- G. All turf warranties shall be non-prorated, limited to repair or replacement of the affected areas, at the option of the Manufacturer and shall include all necessary materials, labor, transportation costs, etc. to complete said repairs. All warranties are contingent on the full payment by the Owner of all pertinent invoices.
- H. The synthetic turf system must maintain an ASTM 355 G-max of between 120-175 for the life of the Warranty. For the first three (3) years of the warranty period, the Field Builder shall perform an annual shock attenuation test to ensure compliance with the G-max ratings listed above. For the remainder of the warranty period, the Owner reserves the right to have the field tested for shock attenuation at its own cost at any time it deems necessary. If the results of the test indicate the G-max rating exceeds the limits for either field, the Field Builder shall perform all work necessary to bring the fields back into the required ranges at no cost to the Owner.

1.08 PROJECT RECORD DOCUMENTS

- A. Submit under provision of Section 017839.
- B. Submit certification of accuracy of installation prepared by a land surveyor licensed by the state of New York.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. FIELD TURF INTERNATIONAL, INC.
- B. SPRINT TURF, INC.
- C. A-TURF
- D. Substitutions shall be permitted only after receiving written approval from the Engineer.

2.02 MATERIALS

- A. Carpet: Polyethylene slit film fibers tufted into a fibrous and porous polypropylene backing.
 - 1. Alternate C7 Carpet: Hybrid turf system made of slit film/monofilament polyethylene fibers, simialr to FieldTurf Vertex-57, or approved equal.
- B. Infill: Mixture of graded sand and rubber crumb.
- C. Glue, thread, paint, seaming fabric: Manufacturer's standard.

2.03 FABRICATION

- A. Fabricate the artificial grass field to meet the following properties:

1.	Standard	Property	Specification
2.	ASTM D1577	Fiber Denier	8000 Nominal
3.	ASTM D418/D5848	Pile Height	2 ¼" Nominal
4.	D418/D5848	Pile Weight	43 oz/sy MIN.
	a.	Pile weight shall be as required to meet life span requirements listed in 1.04-I-2 and warrenty requirements listed in 1.07-B and 1.07-C-1.	
5.	D1338	Tuft Bind	> 7 lbs.
6.	D1682/D5034	Grab Tear	200 lbs/force
7.	F1015	Relative Abrasiveness Index	20.2
8.	D4491	Carpet Permeability	> 20 inches/hour
9.	D2859	Flammability	pass
10.	F355/F1936	Impact Attenuation	> 110 at installation / <195 over field life
- B. The carpet shall consist of fibers tufted into a primary backing with a secondary backing
 - 1. Rolls shall be long enough to traverse from sideline to sideline without splicing. The perimeter line shall be tufted into the individual sideline rolls. Head seams, other than at sidelines, will not be acceptable.
 - 2. The carpet's primary backing shall consist of polypropylene fabric treated with UV inhibitors. The secondary backing shall consist of an application of porous urethane to permanently lock the fiber tufts in place.
 - 3. The fiber shall be 8000 denier, low friction, and UV- resistant fiber measuring not less than 2 ¼ inches high. The same fiber from the above listed projects must be used on this project. Systems with less than a 2 ¼ inch fiber and/or shock pad enhancements will not be accepted as equivalent.
 - 4. The fiber tufts shall be fanned or unfolded prior to installation, rolling or spiraling is not acceptable.

- C. The infill shall consist of a resilient granular system, comprising selected and graded dust-free silica sand and cryogenically hammer-milled or ambient processed SBR rubber crumb.

PART 3 - EXECUTION

3.01 GENERAL

- A. The installation shall be performed in full compliance with approved Shop Drawings.
- B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer supervisors, shall undertake any cutting, sewing, gluing shearing, topdressing or brushing operations.
- C. The designated Supervisory personnel on the project must be certified in writing by the turf manufacturer, as competent in the installation of the material, including sewing seams and proper installation of the infill turf.
- D. All designs, markings, layouts and materials shall conform to all currently applicable National Collegiate Athletic Association rules and other standards that may apply to this type of synthetic grass installation.

3.02 EXAMINATION

- A. Verify that all sub-base, drainage and leveling is complete prior to installation.
- B. The surface to receive the synthetic turf shall be inspected by the installer, and prior to the beginning of installation, the Installer must accept in writing the sub-base surface planarity and compaction. The surface must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.
- C. The compaction of the aggregate base shall be 95%, according to the Modified Proctor procedure (ASTM D1557), and the surface tolerance shall not exceed 0-1/4 inch over 10 feet and 0- 1/2 inch from design grade.

3.03 INSTALLATION

- A. Install artificial infill turf in accordance with the manufacturer's instructions. The turf Contractor shall strictly adhere to the installation procedure outlined under this section. Any variance from these requirements must be accepted in writing by the Manufacturer's onsite representative, and submitted to the Engineer/Owner, verifying that the changes do not in any way affect the warranty. Infill materials shall be approved by the Manufacturer and installed in accordance with the Manufacturer's standard procedures.
- B. The carpet rolls are to be installed directly over the properly prepared sub-base. Extreme care should be taken to avoid disturbing the sub-base, both in regards to compactions and planarity.
- C. Repair and properly compact any disturbed areas of the aggregate base.
- D. Layout full width rolls across the field. Turf shall be of sufficient length to permit full cross-field installation from sideline to sideline. No head or cross seams will be allowed in the main playing area between the sidelines. When all of the rolls of the playing surface have been installed, the sideline areas shall be at right angles to the playing field turf.

- E. Rolls shall be sewn or glued. Seams shall be flat, tight, and permanent with no separation or fraying.
- F. Apply infill materials in thin lifts. The turf shall be brushed as the mixture is applied.
- G. The infill materials shall be installed to fill the voids between the fibers and allow the fibers to remain vertical and non-directional.
- H. Prior to the application of any line painting, the turf shall be fibrillated by means of a nylon rotary brush to provide the look, feel, and safety of optimally maintained natural grass, including subtle undulations normally associated with natural grass athletic fields.
- I. Non-tufted or inlaid lines and marking shall be painted according to the recommendations of the turf manufacturer and of the paint manufacturer. Several applications may be required.
- J. Synthetic turf shall be attached to the perimeter edge detail in accordance with the Manufacturer's standard procedures.

3.04 CLEANING

- A. Protect installed synthetic turf from subsequent construction operations.
- B. Do not permit traffic over unprotected floor surface.
- C. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.
- D. All usable remnants of new material shall become the property of the Owner.
- E. The Contractor shall keep the area clean throughout the project and clear of debris.
- F. Surfaces, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the owner.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Synthetic track system

1.02 RELATED SECTIONS

- A. Section 321216 - Asphaltic Concrete Paving.

1.03 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Submit manufacturer's literature on primer, binder, and EPDM surface.
- C. Contractor shall submit two (2) 2' x 4' samples of the synthetic track system.
- D. Manufacturer's Installation instructions: submit instructions that describe installation methods.
- E. Submit color chart showing full range of manufacturer's colors.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Deliver all materials in original unopened packages with labels intact.
- C. Store all materials at temperatures not less than 40 degrees Fahrenheit.
- D. Do not install products unless ambient air temperature is at least 40 degrees Fahrenheit and is expected to remain above 40 degrees Fahrenheit for seven (7) days.

1.05 QUALIFICATIONS

- A. Manufacturer: Minimum five (5) years documented experience in the manufacturing of synthetic track systems. Striping layout and certification of accuracy must be indicated.
- B. Installer: Trained and registered by manufacturer.
- C. Layout of site and certification of accuracy must be completed by a licensed land surveyor licensed by the state of New York.

1.06 QUALITY ASSURANCE

- A. Obtain all materials from one manufacturer.
- B. Track shall be installed to the requirements of the manufacturer.

1.07 PROJECT RECORD DOCUMENTS

- A. Submit under provision of Section 017839.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Beynon Sporting Surfaces.: Action Track 200 (Black base mat, colored structural spray wearing course)
- B. Substitutions shall be permitted only after receiving written approval from the Engineer.

2.02 MATERIALS

- A. Primer: Single component moisture cured polyurethane primer.
- B. Pigmented Spray Binder: Elastic Polyurethane Pre-Polymer, MDI based. Extremely low odor, capable of excellent weathering and binding characteristics. Binder shall contain 0% TDI Monomers; color to be selected by Owner.
- C. EPDM Spray Rubber Granulate - Pigmented structural spray: 0.5mm to 1.5mm rubber granules; minimum 20% EPDM; color to be selected by Owner.
- D. Clear Base Mat Binder: 100% Polyurethane Pre-Polymer, MDI based. Extremely low odor, capable of excellent weathering and binding characteristics. Binder shall contain 0% TDI Monomers.
- E. EPDM Rubber Base Mat Granulate: 1 mm to 4mm rubber granules; containing no dust and having a density of 1.5 - 0.05.
- F. Line Markers: Two (2) component polyurethane

2.03 MIXES

- A. Black Base Mat:
 - 1. 20% Base Mat Binder; 80% EPDM Rubber Base Mat Granulate
 - 2. Applied to depth of ½”.
- B. Structural Spray Application:
 - 1. 60% Pigmented spray binder; 40% pigmented spray rubber granulate
 - 2. Installed in two (2) spray applications. Minimum of 1.8 lbs. of structural spray per square yard to be installed per coat.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify elevations of the asphalt pavement and/or existing track surface are as indicated on the plans.
- B. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

- A. Prepare asphalt surface and/or existing track surface in accordance with the manufacturer's requirements.

3.03 INSTALLATION

- A. Install full pure track system in accordance with the manufacturer's instructions.
- B. Install synthetic overlay in accordance with the manufacturer's instructions.
- C. Install striping in accordance with manufacturer's instructions.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. PVC coated fence framework, fabric and accessories.
- B. Excavation for post bases; concrete foundation for posts and center drop for gates.
- C. Manual swing gates and related hardware.

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation: Excavation for fence posts.

1.03 REFERENCES

- A. ANSI/ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- B. ANSI/ASTM F567 - Installation of Chain Link Fence.
- C. ASTM A121 - Zinc-Coated (Galvanized) Steel Barbed Wire.
- D. ASTM A392 - Zinc-Coated Steel Chain Link Fence Fabric.
- E. ASTM C150 - Portland Cement.
- F. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain Link Fence Fabric.
- G. ASTM F900 - Industrial and Commercial Swing Gates.
- H. ASTM F1043 - Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.

1.04 SYSTEM DESCRIPTION

- A. Fence Height: As indicated on plans.
- B. Line Post Spacing: As indicated on plans. If not indicated, intervals shall not exceed 10 feet.

1.05 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
- C. Manufacturer's Installation Instructions: Indicate installation requirements and post foundation anchor bolt templates.

1.06 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839.

- B. Accurately record actual locations of property perimeter posts relative to property lines and easements.

1.07 QUALITY ASSURANCE

- A. Perform work in accordance with ANSI/ASTM F567.
- B. Maintain one copy of document on site.

1.08 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum 3 years documented experience.

1.09 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on the plans.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. ANCHOR FENCE, INC.
- B. AMERICAN FENCE CORPORATION.
- C. Substitutions shall be permitted only after receiving written approval from the Engineer.

2.02 MATERIALS

- A. Fence Framing: ASTM F1043; SS40 steel pipe, standard weight, one piece without joints.
- B. Fabric Wire: ASTM A392; Zinc-coated No. 9 steel core wire fabric with 2 inch squares, knuckled all sides.
- C. Gate Framing: ASTM F900; SS40 steel pipe, standard weight, one piece without joints.
- D. Barbed Wire: ASTM A121; Galvanized steel, 12 gage thick wire, 3 strands, 4 points at 5 inches on center.
- E. Concrete: ASTM C150, Type 1; minimum 4,000 psi strength at 28 days; 3 inch slump; 5 to 7 percent air entrainment.
- F. Tie Wire: Aluminum alloy steel wire.

2.03 ACCESSORIES

- A. Caps: Cast steel galvanized or malleable iron galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; galvanized steel.

- C. Extension Arms: Cast steel galvanized to accommodate 3 strands of barbed wire, single arm, sloped to 45 degrees.
- D. Gate Hardware: Fork latch with gravity drop; center gate stop and drop rod; two 180 degree gate hinges per leaf and hardware for padlock.
- E. Diagonal Truss Rod with Turnbuckle: ASTM A153 galvanized steel.
- F. Grounding Rod: ANSI/ASTM A123 steel rod.
- G. Privacy Slats: AsHigh density polyethylene with ultraviolet inhibitors and locking slats.

2.04 FINISHES

- A. Framework: Galvanized to ANSI/ASTM A123; 1.8 oz/sq ft coating with a 10-15 mil supplemental PVC powder coating in accordance with ASTM F1043.
- B. Fabric: Galvanized to ANSI/ASTM A123; 0.3 oz/sq ft coating with a 7-12 mil supplemental PVC coating in accordance with ASTM F668.
- C. Fittings and Accessories: Galvanized to 1.2 oz/sq ft coating with a 10-15 mil supplemental PVC powder coating in accordance with ASTM F1043.
- D. Color: Selected by Owner.

PART 3 - PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ANSI/ASTM F567 and manufacturer's instructions.
- B. Set all posts plumb in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.
- C. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, one bay from end and gate posts.
- D. Install diagonal truss rod from the center of the gate or corner post to the bottom of the adjacent line post.
- E. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
- F. Install brace rail on corner gate leaves.
- G. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- H. Position bottom of fabric 2 inches above finished grade.
- I. Fasten fabric to top and bottom rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

- J. Attach fabric to end, corner and gate posts with tension bars and tension bar clips.
- K. Do not swing gate from building wall; provide gate posts.
- L. Install gate with fabric and barbed wire overhang to match fence. Install 3 hinges per leaf, latch, catches and drop bolt.
- M. Install concrete center drop to footing depth and drop rod retainers at center of double gate openings.
- N. Install 8 foot grounding rod to fence post.

3.02 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From True Position: 1 inch.
- C. Components shall not infringe adjacent property lines.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Finish grade subsoil.
- B. Place, level and compact topsoil.

1.02 RELATED SECTIONS

- A. A. Section 329219.16 – HydroSeeding.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Deliver topsoil to the site in uncontaminated containers.
- C. Do not stockpile topsoil over a height of 8 feet.
- D. Cover stockpiled topsoil to protect from precipitation, erosion and contamination.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Do not place wet or frozen topsoil.
- B. Do not place topsoil on wet or frozen ground or when precipitation is occurring.

1.05 COORDINATION

- A. Coordinate work under provisions of Section 013100.
- B. Coordinate with all adjacent work and work within areas to receive topsoil.
- C. Coordinate the storage of topsoil under provisions of Section 311100 with the placement of topsoil in this section.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; friable loam; free of subsoil, clay or impurities, plants, weeds, roots, grass, stone and foreign matter; acidity range (pH) of 5.8 to 6.5; containing a minimum of 2.75 percent and a maximum of 25 percent organic matter. Topsoil may be reused from on-site if it meets these requirements.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing substrate and conditions.

- B. Verify site conditions and note irregularities affecting work of this section.
- C. Beginning work of this section means acceptance of existing conditions.

3.02 PREPARATION

- A. Prepare subsoil in accordance with Section 312213.
- B. Eliminate uneven areas and low spots. Remove and dispose of debris, roots, branches and stones in excess of 1/2 inch in size. Remove and dispose of subsoil contaminated with petroleum products.
- C. Scarify subsoil to depth of 3 inches where topsoil is scheduled to be placed. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.03 INSTALLATION

- A. Place topsoil in areas where seeding, sodding or planting is scheduled or where shown on the plans.
- B. Place topsoil to the depths as indicated on the plans.
- C. Use topsoil in relatively dry state. Place during dry weather.
- D. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles and contours of subgrade.
- E. Remove and dispose stone, roots, grass, weeds, debris and foreign material while spreading.
- F. Manually spread topsoil around trees, plants and building to prevent damage.
- G. Lightly roll placed topsoil.
- H. Remove surplus subsoil and topsoil from site. Do not remove surplus topsoil from the site prior to obtaining approval of the Engineer.
- I. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.04 TOLERANCES

- A. Maximum Variation from Proposed Elevation: 1/2 inch.

3.05 PROTECTION

- A. Protect finished work under provisions of Section 016500.
- B. Protect landscaping and other features remaining as final work.
- C. Protect existing structures, fences, roads, sidewalks, paving and curbs. Any damage caused by the Contractor to any of these items shall be repaired promptly by the Contractor at no additional cost to the Owner.

END OF SECTION

TOPSOIL PLACEMENT AND GRADING
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Seeding.
- B. Mulch, fertilizer, hydromulch and other accessories.
- C. Maintenance.

1.02 RELATED SECTIONS

- A. Section 329119.13 - Topsoil Placement and Grading.

1.03 REFERENCES

- A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.04 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel and Brome Grass.

1.05 SUBMITTALS

- A. Submit under provisions of Section 013000.
- B. Product Data: Provide data on seed mixtures, fertilizer and lime.
- C. Certificates: Provide certificates indicating that all fertilizer, pesticides and herbicides comply with all applicable regulatory agency requirements.

1.06 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017000.
- B. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.07 QUALITY ASSURANCE

- A. Seed: Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.08 REGULATORY REQUIREMENTS

- A. Comply with applicable regulatory agencies for fertilizer, pesticide and herbicide composition.
- B. All fertilizer, pesticides and herbicides to be used shall comply with all applicable regulatory agency requirements.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016000.
- B. Deliver grass seed mixture in original sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis and name of manufacturer.
- D. Deliver Hydromulch in UV and weather resistant bags, showing weight, chemical analysis and name of manufacturer.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Do not sow immediately following rain, during windy periods or if ground is frozen.
- B. Do not sow when the ambient temperature is expected to drop below 40 degrees F or rise above 90 degrees F during the time in which the seed will establish itself.
- C. Planting Season: April 1st through May 15th or September 1st through October 15th.

1.11 COORDINATION

- A. Coordinate work under provisions of Section 013100.
- B. Coordinate with grading and placement of topsoil.
- C. Coordinate with installation of underground sprinkler system piping and watering heads.

1.12 WARRANTY

- A. Provide a one-year warranty under provisions of Section 017000.
- B. Include coverage for one continuous growing season; reseed areas of dead or unhealthy grass at no additional cost to the Owner.

1.13 MAINTENANCE SERVICE

- A. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition, as determined by at least two cuttings, or until the job is accepted by the Owner, whichever occurs last.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Seed: Dry, fresh, re-cleaned seed of the latest crops and of the following proportions:
 - 1. Mix A:

Grass Type	% of Mixture	Min. % Germination
Kentucky 31 Fescue	50	90

NK 100 Perennial Rye	25	85
Penn Lawn Fescue	25	90

1. Mix B:

Grass Type	% of Mixture	Min. % Germination
Merion Bluegrass	50	80
Penn Lawn Fescue	30	90
NK 106 Hybrid Rye	20	85

2.02 ACCESSORIES

- A. Mulching Material: Hemlock species wood cellulose fiber, dust form, free of growth or germination inhibiting ingredients.
- B. Fertilizer: FS O-F-241, Type I, Grade A; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, to the following proportions: Nitrogen 10 percent, phosphoric acid 6 percent, soluble potash 4 percent.
- C. Limestone: Ground dolomitic limestone containing a minimum of 90 percent calcium and magnesium carbonates. One hundred percent (100%) shall pass a No. 10 mesh screen and a minimum of 70 percent shall pass a No. 100 mesh screen.
- D. Hydromulch: 84 percent Mechanically processed straw, 15 percent Mechanically processed reclaimed cotton plant material and 1 percent of tackifier, activators and additives; minimum of 90 percent organic material; moisture content of 12 percent, total carbon to nitrogen ratio, 40:1. Color to be natural green.
- E. Peat Moss: Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials; minimum of 90 percent organic material measured by oven dry weight; pH range of 4 to 5 percent; moisture content of 30 percent; with moisture absorbtive capacity of 450 to 500 percent.
- F. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.
- G. Stakes: Softwood lumber, chisel pointed.
- H. String: Inorganic fiber.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing substrate and site conditions.
- B. Verify that prepared soil base is ready to receive the work of this section.
- C. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

- A. Area to be seeded shall be cultivated with a scarifier to a depth of 4 inches. All stones, sticks and debris one inch and larger shall be removed. Area shall be smoothly graded to proper elevations.

3.03 APPLICATION

- A. Fill tank of mechanically agitated hydroseeding machine with sufficient water to suspend seed and fertilizers.
- B. Add water slowly while adding hydromulch. See manufacturer's recommendations to determine the proper application rate.
- C. Agitate for a minimum of ten minutes after adding the last amount of water and hydromulch.
- D. Apply hydromulch with a hydraulic seeder at a rate of 46 lbs per 1000 sq ft. Apply in a uniform layer from 2 opposing directions to ensure complete soil coverage.
- E. Do not hydroseed areas in excess of that which can be mulched on same day.
- F. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil. Discontinue watering if washing begins to occur.
- G. Clean all surfaces which have received hydroseeding overspray.
- H. Identify seeded areas with stakes and string around area periphery. Set string height to 24 inches. Space stakes at 8 feet on center.

3.04 MAINTENANCE

- A. Maintain grass until job is accepted by the Owner or until the grass exhibits a vigorous growing condition, as determined by at least 2 cuttings, whichever occurs last.
- B. Mow grass at regular intervals to maintain at a maximum height of 2-1/2 inches. Do not cut more than 1/3 of grass blade at any one mowing.
- C. Neatly trim edges and hand clip where necessary.
- D. Immediately remove clippings after mowing and trimming.
- E. Water to prevent grass and soil from drying out.
- F. Immediately reseed areas which show bare spots.

3.05 PROTECTION

- A. Protect finished work under provisions of Section 015000.
- B. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Corrugated polyethylene pipe.
- B. Fittings and accessories.

1.02 RELATED SECTIONS

- A. Section 312333 - Trenching

1.03 REFERENCES

- A. ASTM D2321 - Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications.
- B. ASTM F405 - Corrugated Polyethylene (PE) Tubing and Fittings.
- C. ASTM F667 - Large Diameter Corrugated Polyethylene Tubing and Fittings.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide data on pipe, fittings and accessories.
- C. Manufacturer's Instructions: Indicate special procedures and conditions required to install products specified.

1.05 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of pipe runs, connections and invert elevations.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for materials and installation of the work of this section.
- B. Install pipe in accordance with ASTM D2321.

1.07 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on the plans and as required by the manufacturer.

1.08 COORDINATION

- A. Coordinate pipe installation with the trenching.

PART 2 - PRODUCTS

2.01 COMPONENTS

- A. Corrugated Polyethylene Pipe: ASTM F405 or ASTM F667 corrugated polyethylene; N-12 manufactured by ADVANCED DRAINAGE SYSTEMS, INC. or specifically approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions and substrate.
- B. Verify that trench cut is ready to receive work and excavations, dimensions and elevations are as indicated on the plans.

3.02 PREPARATION

- A. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.
- B. Excavate under provisions of Section 312316.

3.03 INSTALLATION

- A. Install pipe and accessories in accordance with manufacturer's instructions and approved shop drawings.
- B. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.
- C. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
- D. Lay pipe to slope gradients noted on the plans, with maximum variation from true slope of 1/8 inch in 10 feet.
- E. Backfill under provisions of Section 312323.13.

3.04 TOLERANCES

- A. Maximum Variation from Intended Invert Elevation: 1/2 inch.
- B. Maximum Offset of Pipe from True Alignment: 1 inch.

3.05 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014500.
- B. Request inspection prior to and immediately after placing aggregate cover over pipe.

CORRUGATED POLYETHYLENE PIPING
WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD
White Plains High School
SED No.: 66-22-00-01 0-016-029

H2M

3.06 PROTECTION

- A. Protect pipe from damage or displacement until backfilling operation is in progress.

END OF SECTION

PRECAST CONCRETE CATCH BASINS AND FIELD INLETS

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Precast concrete catch basins and field inlets.
- B. Castings.

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation.
- B. Section 312323.13 - Backfilling.
- C. Section 334116 -Corrugated Polyethylene Pipe.

1.03 REFERENCES

- A. ASTM A48 - Gray Iron Castings.
- B. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- C. ASTM C55 - Concrete Building Brick.
- D. ASTM C150 - Portland Cement.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Indicate dimensions and details of catch basins and castings.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Store products on firm and level ground.
- C. Handle products in such a manner which will not induce unnecessary stresses, cause cracks to occur or damage the product in any way.
- D. Any cracked or otherwise defective materials will be rejected.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not mix or place mortar if ambient temperature is below 40 degrees F.

1.07 COORDINATION

- A. Coordinate work under provisions of Section 013100.
- B. Coordinate with excavation, backfilling, installation of piping and all other work.

PRECAST CONCRETE CATCH BASINS AND FIELD INLETS

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. OLD CASTLE PRECAST, INC.
- B. SUFFOLK COUNTY PRECAST CORP.
- C. COASTAL PIPELINE PRODUCTS CORP.
- D. Substitutions shall be permitted only after receiving written approval from the Engineer.

2.02 MATERIALS

- A. Catch Basin and Field Inlet Sections: Reinforced precast concrete, lipped male/female joint, of the following materials:
 - 1. Concrete: ASTM C150 normal Portland cement, Type 1; minimum 4,000 psi strength at 28 days.
 - 2. Reinforcement: ASTM A615 reinforcing bars.
 - 3. Castings: ASTM A48, Class 30B, cast iron construction, machined flat bearing surface, non-rocking; removable grate, capable of supporting the AASHTO HS-20-44 highway loading; free from blowholes, shrinkage, distortion, cracks or other defects; smooth and of uniform quality; size and pattern as indicated on the plans, manufactured by CAMPBELL FOUNDRY COMPANY or specifically approved equal.

2.03 ACCESSORIES

- A. Brick: ASTM C55, Grade N, Type I - Moisture Controlled; normal weight; nominal modular size as required.
- B. Mortar: A 1:1:5 ratio of Portland cement, masonry cement and sand, respectively. Add water as required to create a workable consistency.
- C. Catch Basin Steps: Cast iron rungs; pattern number 2589 as manufactured by CAMPBELL FOUNDRY COMPANY; pattern number R-1980-C as manufactured by NEENAH FOUNDRY COMPANY, or specifically approved equal.
- D. Concrete for Formed Invert: ASTM C150 Portland cement type I, cast in place; 3,000 psi minimum strength at 28 days; dimensions as indicated on the plans.

2.04 FABRICATION

- A. Fabricate and reinforce catch basin to the dimensions as indicated on the plans.
- B. Pipe Entry: Provide openings as required.
- C. Steps: Set or drilled and grouted in the catch basin wall at 18 inches on center vertically.

PRECAST CONCRETE CATCH BASINS AND FIELD INLETS

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing grades are as indicated on the plans.
- B. Verify items provided by other sections of work are properly sized and located.
- C. Verify that rough openings for piping are as required.

3.02 INSTALLATION

- A. Form bottom of excavation clean and smooth to correct elevation. Compact bottom of the excavation to a minimum of 95 percent of maximum dry density.
- B. Place catch basin, secure and level, to the proper elevation. Utilize a placement method which will not damage or crack the catch basin.
- C. Place catch basin sections plumb and level, trim to correct elevations.
- D. Cut and fit for pipe. Seal openings in wall around pipe with brick and mortar. Establish elevations and pipe inverts for inlets and outlets as indicated on the plans. Trowel surfaces smooth.
- E. When indicated on the plans, place concrete in base of catch basin as required to form invert to the dimensions indicated on the plans. Trowel smooth.
- F. Set slab top on catch basin in a 1 inch mortar bed.
- G. Mount casting in a 1 inch mortar bed over access opening. Install firm, level and to the required elevation.
- H. If required to achieve proper elevation of casting, adjust with brick and mortar. A maximum height of 5 inches is permitted between the catch basin and the base of the casting. Maintain a maximum of 1 inch thickness of mortar between all bricks.

3.03 TOLERANCES

- A. Maximum Variation from Proposed Rim Elevation: 1/4 inch.
- B. Maximum Variation from Proposed Location: 1/2 inch.

3.04 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014500.
- B. Request inspection prior to backfilling around structure and prior to surface restoration.

3.05 PROTECTION

- A. Protect finished work under provisions of Section 015000.

PRECAST CONCRETE CATCH BASINS AND FIELD INLETS

H2M

WHITE PLAINS CITY SCHOOL DISTRICT
HIGH SCHOOL UPGRADES AND TURF FIELD

White Plains High School

SED No.: 66-22-00-01 0-016-029

- B. Protect catch basin from damage or displacement until project is accepted by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Oblong Corrugated polyethylene pipe.
- B. Fittings and accessories.

1.02 RELATED SECTIONS

- A. Section 312333 - Trenching.
- B. Section 321823.29 - Synthetic Infill Turf.

1.03 REFERENCES

- A. ASTM D2321 - Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications.
- B. ASTM F405 - Corrugated Polyethylene (PE) Tubing and Fittings.
- C. ASTM D7001 - Geocomposites for Pavement Edge Drains and other High-Flow Applications
- D. ASTM D3350 - Polyethylene Plastics Pipe and Fittings Materials

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide data on pipe, fittings and accessories.
- C. Manufacturer's Instructions: Indicate special procedures and conditions required to install products specified.

1.05 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of pipe runs, connections and invert elevations.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for materials and installation of the work of this section.
- B. Install pipe in accordance with ASTM D2321.

1.07 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on the plans and as required by the manufacturer.

1.08 COORDINATION

- A. Coordinate pipe installation with the trenching.

PART 2 - PRODUCTS

2.01 COMPONENTS

- A. Oblong Corrugated Polyethylene Pipe: AdvanEDGE manufactured by ADVANCED DRAINAGE SYSTEMS, INC. or specifically approved equal.

2.02 ACCESSORIES

- A. Filter Fabric: Must comply with the following properties:

Fabric Properties	Test Method	Minimum Average Roll Values
Grab Tensile Strength (lbs.) (weakest principle direction)	ASTM D4632	120
Grab Elongation (%) (weakest principle direction)	ASTM D4633	60
Trapezoidal Tear (lbs.) (weakest principle direction)	ASTM D4533	40
Puncture (lbs.)	ASTM D3786	30
Permittivity (sec)	ASTM D4491	0.70
AOS (U.S. sieve size)	ASTM D4751	60
U.V. Resistance	ASTM D4355	70

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions and substrate.
- B. Verify that trench cut is ready to receive work and excavations, dimensions and elevations are as indicated on the plans.

3.02 PREPARATION

- A. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.
- B. Excavate under provisions of Section 312316.

3.03 INSTALLATION

- A. Install pipe and accessories in accordance with manufacturer's instructions and approved shop drawings.
- B. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.

- C. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
- D. Lay pipe to slope gradients noted on the plans, with maximum variation from true slope of 1/8 inch in 10 feet.
- E. Backfill under provisions of Section 312323.13.

3.04 TOLERANCES

- A. Maximum Variation from Intended Invert Elevation: 1/2 inch.
- B. Maximum Offset of Pipe from True Alignment: 1 inch.

3.05 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014500.
- B. Request inspection prior to and immediately after placing aggregate cover over pipe.

3.06 PROTECTION

- A. Protect pipe from damage or displacement until backfilling operation is in progress.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Precast concrete manhole sections with tongue-and-groove joints, covers, anchorage and accessories.

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation
- B. Section 312323.13 - Backfill.

1.03 REFERENCES

- A. ASTM A48 - Gray Iron Castings.
- B. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- C. ASTM C55 - Concrete Building Brick.
- D. ASTM C150 - Portland Cement.
- E. ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe Using Rubber Gaskets.
- F. ASTM C478 - Precast Reinforced Concrete Manhole Sections.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Indicate dimensions and details of manhole sections and castings.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Store products on firm, level ground.
- C. Handle products in a manner which will not induce unnecessary stresses, cause cracks to occur or damage the product in any way.
- D. Any cracked or otherwise defective materials will be rejected.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not mix or place mortar if ambient temperature is below 40 degrees F.

1.07 COORDINATION

- A. Coordinate the work under provisions of Section 013100.
- B. Coordinate with installation of piping and all other work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. OLDCASTLE PRECAST, INC.
- B. COASTAL PIPELINE PRODUCTS, INC.
- C. Substitutions shall be permitted only after receiving written approval from the Engineer.

2.02 MATERIALS

- A. Manhole Sections: ASTM C478 reinforced precast concrete lipped male/female joint, ASTM C443 gaskets; of the following materials:
 - 1. Concrete: ASTM C150, normal Portland cement Type I, minimum 4,000 psi strength at 28 days.
 - 2. Reinforcement: ASTM A615 reinforcing bars.
- B. Castings: ASTM A48, Class 30B, cast iron construction, machined flat bearing surface, non-rocking, removable lid, open checkerboard grille lid design; able to support the AASHTO HS-20-44 highway loading; free from blowholes, shrinkage, distortion, cracks or other defects; smooth and of uniform quality; size and dimensions as indicated on the plans; manufactured by CAMPBELL FOUNDRY COMPANY or specifically approved equal.

2.03 ACCESSORIES

- A. Brick: ASTM C55, Grade N, Type I - Moisture Controlled; normal weight; nominal modular size as required.
- B. Mortar: A 1:1:5 ratio of Portland cement, masonry cement and sand, respectively. Add water as required to create a workable consistency.
- C. Manhole Steps: Cast iron rungs; pattern number 2589-2252 as manufactured by CAMPBELL FOUNDRY COMPANY, or specifically approved equal.
- D. Concrete for Formed Invert: ASTM C150 Portland cement Type I, cast in place; 3,000 psi minimum strength at 28 days; wood float finish; dimensions as indicated on the plans.

2.04 FABRICATION

- A. Shaft Construction: Concentric with cone top section; lipped male/female joints with rubber gasket; dimensions and reinforcement as indicated on the plans.
- B. Pipe Entry: Provide openings as required.
- C. Steps: Set or drilled and grouted into manhole wall at 18 inches on center vertically.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing site conditions.

- B. Verify existing grades are as indicated on the plans.
- C. Verify items provided by other sections of Work are properly sized and located.
- D. Verify that rough openings for piping are as required.

3.02 INSTALLATION

- A. Form bottom of excavation clean and smooth to the correct elevation.
- B. Place base pad, secure and level, to the proper elevation. Utilize a placement method which will not damage or crack the manhole.
- C. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.
- D. Cut and fit for pipe. Seal openings in shaft wall around pipe with brick and mortar. Establish elevations and pipe inverts for inlets and outlets as indicated on the plans. Trowel surfaces smooth.
- E. Place concrete in base of manhole as required to form invert to the dimensions indicated on the plans. Trowel smooth.
- F. Mount castings in a 1 inch mortar bed over access opening. Install firm, level and to the required elevation.
- G. If required to achieve proper elevation of casting, adjust with brick and mortar.

3.03 TOLERANCES

- A. Maximum Variation from Proposed Rim Elevation: 1/4 inch.
- B. Maximum Variation from Proposed Location: 1/2 inch.

3.04 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Request inspection prior to backfilling around structure and prior to surface restoration.

3.05 PROTECTION

- A. Protect finished work under provisions of Section 015000.
- B. Protect manhole from damage or displacement until project is accepted by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. High Molecular Weight High Density Polyethylene (HMWHDPE) Linear Leaching Chambers and accessories.
- B. Castings.

1.02 RELATED SECTIONS

- A. Section 312316 - Excavation.
- B. Section 312323.13 - Backfilling: Crushed Stone Backfill Around Leaching Chambers.
- C. Section 334116 - Corrugated Polyethylene Pipe.

1.03 REFERENCES

- A. AASHTO (American Association of State Highway and Transportation Officials)
- B. ASTM A48 - Gray Iron Castings.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Indicate dimensions and details of linear leaching chambers and castings.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Section 016500.
- B. Store products on firm and level ground.
- C. Handle products in such a manner which will not induce unnecessary stresses, cause cracks to occur or damage the product in any way.
- D. Any cracked or otherwise defective materials will be rejected.

1.06 COORDINATION

- A. Coordinate work under provisions of Section 013100.
- B. Coordinate with excavation, backfilling, installation of piping and all other work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. CULTEC INC.
- B. Substitutions shall be permitted only after receiving written approval from the Engineer.

2.02 MATERIALS

- A. Linear Leaching Chambers: High Molecular Weight High Density Polyethylene (HMWHDPE); perforated and capable of supporting the AASHTO HS-20 highway loading.
- B. Castings: ASTM A48, Class 30B, cast iron construction, machined flat bearing surface, non-rocking; removable grate, capable of supporting the AASHTO HS-20-44 highway loading; free from blowholes, shrinkage, distortion, cracks or other defects; smooth and of uniform quality; size, pattern R-7506 manufactured by NEENAH FOUNDRY COMPANY or specifically approved equal.

2.03 ACCESSORIES

- A. Crushed Stone: Refer to Section 312323.13.
- B. Filter Fabric: Non-woven geotextile; 140N manufactured by Mirafi or equal.

2.04 FABRICATION

- A. Pipe Entry: Provide openings as required.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing site conditions under provisions of Section 013100.
- B. Verify existing grades are as indicated on the plans.
- C. Verify items provided by other sections of work are properly sized and located.
- D. Verify that rough openings for piping are as required.

3.02 INSTALLATION

- A. Form bottom of excavation clean and smooth to correct elevation. Compact bottom of the excavation to a minimum of 95 percent of maximum dry density.
- B. Place linear leaching chambers, secure and level, to the proper elevation. Utilize a placement method which will not damage the leaching chamber.
- C. Place linear leaching chamber sections plumb and level, trim to correct elevations.
- D. Cut and fit for pipe and inspection ports. Establish elevations and pipe inverts for inlets and outlets as indicated on the plans.
- E. Lay filter fabric as indicated in manufacturer's installation instructions.
- F. All linear leaching chambers must be installed in accordance with all applicable local, state and federal regulations. Refer to manufacturer's installation guidelines.

3.03 TOLERANCES

- A. Maximum Variation from Proposed Rim Elevation: 1/4 inch.
- B. Maximum Variation from Proposed Location: 1/2 inch.

3.04 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014500.
- B. Request inspection prior to backfilling around chambers and prior to surface restoration.

3.05 PROTECTION

- A. Protect finished work under provisions of Section 015000.
- B. Protect linear leaching chambers from damage or displacement until project is accepted by the Owner.

END OF SECTION

APPENDIX

FINAL REPORT FOR ENVIRONMENTAL INSPECTION SERVICES –
WHITE PLAINS HIGH SCHOOL (DATED __/__/__)

FINAL REPORT OF ENVIRONMENTAL SERVICES

Performed at:

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**

Prepared for:



**White Plains City School District
5 Homeside Lane
White Plains, NY 10603**

Prepared by:



Louis Berger A WSP Company

565 Taxter Road, 5th Floor

Elmsford, New York 10523

Tel. (914) 798-3710

Fax (914) 592-1734

Project No. 2043479.17

Final Submission Date: October 7, 2019



Louis Berger A WSP Company

565 Taxter Road, 5th Floor, Elmsford, NY 10523
Tel 914 798 3710 Fax 914 592 1734

www.louisberger.com

October 7, 2019

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10603

**Subject: Final Report of Environmental Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger (LB) A WSP Company has completed a material inspection at the White Plains High School located at 550 North Street, White Plains NY 10605. The inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs) based on the design drawings dated September 2019 submitted by H2M Architects & Engineers for the proposed “Interior Upgrades & Site Work Project” at the White Plain High 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,

LOUIS BERGER (LB) A WSP COMPANY

Craig Napolitano, CHMM
Vice President, Emergency Management & IH Services



Final Report for Environmental Inspection 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

Appendix E: PCB Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results

Appendix F: Company License, Personnel Certifications and Laboratory Accreditations

Appendix G: File Search



Final Report for Environmental Inspection Services

1.0 EXECUTIVE SUMMARY

Louis Berger (LB) A WSP Company has performed a material inspection for the presence or absence of Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs) at the White Plains High School located at 550 North Street, White Plains NY 10605. The intent of this inspection was to screen for Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs) that may be impacted during the proposed “Interior Upgrades & Site Work Project” at the White Plains High School based on the design drawings dated September 2019 submitted by H2M Architects & Engineers.

Marvin Luccioni, Josue Garcia & Luis Nevarez of LB performed the inspection on September 17, 2019. Mr. Luccioni (Cert# 03-11021) is certified as a New York State Department of Labor (NYSDOL) Asbestos Inspector. Mr. Garcia (Cert# 01-04292) is certified as a New York State Department of Labor (NYSDOL) Asbestos Inspector. Mr. Nevarez (Cert# 12-12740) is certified as a New York State Department of Labor (NYSDOL) Asbestos Inspector.

The results of the visual inspection and bulk sample analysis determined that the following suspect ACM and PCB materials may be impacted by the proposed interior upgrades:

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected by LB on 9/17/19 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**

Analytical results of the bulk samples collected by LB on 5/2/17 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Mudded Elbows associated with Fiberglass Pipe Insulation, Gray (Bldg. C Corridor behind Lockers)**
- **Cementitious Panels, Gray (Custodians Office)**

Analytical results of the bulk samples collected by LB on 3/29-30/17 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldgs. B, C & E Steam Tunnels)**
- **Debris (Mudded Joints) inside Wall Penetrations & Ground (Bldgs. B, C, D & E Steam Tunnels)**



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Analytical results of the bulk samples collected by LB on 5/3/16 & 6/8/16 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**

Analytical results of the bulk samples collected by LB on 9/11/13 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **9"x9" Floor Tiles (Throughout Interior)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

The following materials **are assumed to be asbestos**.

- **Braided Electrical Wiring in Electrical Boxes & Conduits**

The following materials **contain asbestos as per 2019 AHERA**.

- **9"x9" Floor Tiles/Mastic (Throughout Interior)**
- **Transite Soffit**

Analytical results of bulk samples collected by LB on 9/17/19 indicate the following materials **do not contain** asbestos (less than 1-percent);

- 12" Elbows associated with Fiberglass Pipe Insulation, Gray (Pool Mechanical Room)
- 6" Elbows associated with Fiberglass Pipe Insulation, Gray (Pool Mechanical Room)
- Boiler Breeching, Tan (Pool Boiler Room)
- Gasket, Red (Pool Boiler Room)
- Store Front Caulking, Gray (Main Vestibule Entrance)
- Terrazzo Flooring (Main Vestibule Entrance)
- Block Wall Mortar, Gray (Main Vestibule Entrance)
- Exterior Base Caulking, Gray (Exterior Main Vestibule Entrance)
- Exterior Brick Mortar, Gray (Exterior Façade)

Analytical results of bulk samples collected by LB on 2/2/18 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Interior Glazed Brick Mortar, Gray (Throughout Interior)
- Joint Compound, White (Throughout Interior)
- Sheetrock, White (Throughout Interior)
- Plaster, Brown Coat



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Analytical results of bulk samples collected by LB on 9/11/17 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Interior Brick Mortar, Gray (Throughout Interior)
- Interior Cinderblock Mortar, Gray (Throughout Interior)
- 1'x1' Pinhole Ceiling Tiles, White (Throughout Interior)
- Mastic associated with 1'x1' Pinhole Ceiling Tiles, Brown (Throughout Interior)
- Fittings Insulation associated with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White (Throughout Interior)
- Joint Compound associated with Sheetrock, White (Throughout Interior)
- Caulking at Metal Exhaust Vent Edge, Gray

Analytical results of bulk samples collected by LB on 5/2/17 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Canvas over Fiberglass Pipe Insulation, Gray (Bldg. C Corridor behind Lockers)
- Mastic associated with 4" Brown Cove Base, Brown (Bldg. C Corridor behind Lockers)
- 4" Brown Cove Base (Bldg. C Corridor behind Lockers)
- Particle Board, Brown (Bldg. C above Lockers)

Analytical results of bulk samples collected by LB on 3/29-30/17 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldgs. A Steam Tunnels)
- Debris (Mudded Joints) inside Wall Penetrations & Ground (Bldgs. A Steam Tunnel)
- Vapor Barrier Material on Fiberglass Pipe Insulation, Black (Bldgs. A, B, C, D, E, F Steam Tunnel)
- Cloth Fabric over Fiberglass Pipe Insulation, Beige (Bldgs. A Steam Tunnels)
- Sealant to Fiberglass Pipe Insulation Seams, White (Bldgs. A, B, C, D, E, F Steam Tunnels)
- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldgs. D Steam Tunnel)
- Paper (Pipe) Insulation Debris on Ground, White (Bldgs. E Steam Tunnels)
- Cementitious Material on Ground, Gray (Bldgs. E Steam Tunnels)
- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldg. F Pool Mech Room)
- Vibration Cloth, Black (Bldg. F Pool Mech Room)
- Cloth Fabric to Fiberglass Duct Work Insulation, Beige (Bldg. F Pool Mech Room)



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- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Penthouse Mech Room E219A)
- Vapor Barrier Material on Fiberglass Pipe Insulation, Black (Penthouse Mech Room E219A)
- Sealant to Fiberglass Pipe Insulation Seams, White (Penthouse Mech Room E219A)
- Ceiling Plaster, Gray Only (Penthouse Mech Room E219A)
- Cloth Fabric to Fiberglass Duct Work Insulation, Beige (Penthouse Mech Room E219A)
- Gaskets, Green (Penthouse Mech Room E219A)

Analytical results of bulk samples collected by LB on 5/31/16 & 6/8/16 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Exterior Brick Mortar, Gray
- Tectum Ceiling Panels, Gray
- Asphalt, Black
- Interior Cinderblock Mortar, Gray
- Ceiling Scratch Coat, Gray
- Canvas Wrap around Fiberglass Pipe & Fitting Insulation, Gray
- Wall Plaster, White & Brown Coats

Analytical results of bulk samples collected by LB on 9/11/13 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Baseboard Glue, Brown
- Baseboard Molding, Brown
- Mastic associated with 9"x9" Floor Tiles, Black
- 2'x4' Ceiling Tiles, Gray
- Wall Ceramic Tile Grout, White
- Floor Ceramic Tile Grout, Brown
- Glazing at Entrance Aluminum Framing/Panels, White
- Interior Brick Mortar, Gray
- Interior Cinderblock Mortar, Gray
- 1'x1' Pinhole Ceiling Tiles, White
- Mastic associated with 1'x1' Pinhole Ceiling Tiles, Brown
- Glazing at Celestory Glass Panel between Rooms & Hallways, Gray
- Fitting Insulation associated with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock Walls/Ceilings, White
- Joint Compound associated with Sheetrock Walls, White



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- Caulking at Metal Exhaust Vent Edges, Gray

The following materials **did not contain asbestos as per 2019 AHERA**.

- 1'x1' Pinhole Pattern Ceiling Tiles, White
- 2'x4' Pinhole Ceiling Tiles, White
- 1'x1' Gouged Ceiling Tiles, White
- 2'x4' Small Pinhole Ceiling Tiles, White
- 1'x1' Fissure Ceiling Tiles, White
- 2'x4' (2'x2' Design) Ceiling Tiles, White
- 2'x2' Small Pinhole Ceiling Tiles, White
- Interior Brick Mortar, Gray
- Interior Cinderblock Mortar, Gray
- Mastic associated with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings associated with Fiberglass Pipe Insulation, Brown
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White
- Joint Compound associated with Sheetrock, White

The following materials **are non-suspect materials**.

- PVC Elbows associated with Fiberglass Pipe Insulation

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);

- Store Front Caulking, Gray (Main Vestibule Entrance)



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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 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 25th, 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 25th 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.



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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 25th, 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 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)

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.



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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.



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3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT

The areas inspected for ACM and PCB materials that may be impacted by the proposed interior upgrades at the White Plains High School. Locations surveyed include:

- Throughout Interior

A. ASBESTOS-CONTAINING MATERIAL

Materials examined during the Berger inspection included:

- 12” Elbows associated with Fiberglass Pipe Insulation, Gray (Pool Mechanical Room)
- 6” Elbows associated with Fiberglass Pipe Insulation, Gray (Pool Mechanical Room)
- Boiler Breeching, Tan (Pool Boiler Room)
- Gasket, Red (Pool Boiler Room)
- Store Front Caulking, Gray (Main Vestibule Entrance)
- Terrazzo Flooring (Main Vestibule Entrance)
- Block Wall Mortar, Gray (Main Vestibule Entrance)
- Exterior Base Caulking, Gray (Exterior Main Vestibule Entrance)
- Exterior Brick Mortar, Gray (Exterior Façade)

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected by LB on 9/17/19 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**

Analytical results of the bulk samples collected by LB on 5/2/17 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Mudded Elbows associated with Fiberglass Pipe Insulation, Gray (Bldg. C Corridor behind Lockers)**
- **Cementitious Panels, Gray (Custodians Office)**

Analytical results of the bulk samples collected by LB on 3/29-30/17 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldgs. B, C & E Steam Tunnels)**
- **Debris (Mudded Joints) inside Wall Penetrations & Ground (Bldgs. B, C, D & E Steam Tunnels)**



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Analytical results of the bulk samples collected by LB on 5/3/16 & 6/8/16 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**

Analytical results of the bulk samples collected by LB on 9/11/13 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **9"x9" Floor Tiles (Throughout Interior)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

The following materials **are assumed to be asbestos**.

- **Braided Electrical Wiring in Electrical Boxes & Conduits**

The following materials **contain asbestos as per 2019 AHERA**.

- **9"x9" Floor Tiles/Mastic (Throughout Interior)**
- **Transite Soffit**

Analytical results of bulk samples collected by LB on 9/17/19 indicate the following materials **do not contain** asbestos (less than 1-percent);

- 12" Elbows associated with Fiberglass Pipe Insulation, Gray (Pool Mechanical Room)
- 6" Elbows associated with Fiberglass Pipe Insulation, Gray (Pool Mechanical Room)
- Boiler Breeching, Tan (Pool Boiler Room)
- Gasket, Red (Pool Boiler Room)
- Store Front Caulking, Gray (Main Vestibule Entrance)
- Terrazzo Flooring (Main Vestibule Entrance)
- Block Wall Mortar, Gray (Main Vestibule Entrance)
- Exterior Base Caulking, Gray (Exterior Main Vestibule Entrance)
- Exterior Brick Mortar, Gray (Exterior Façade)

Analytical results of bulk samples collected by LB on 2/2/18 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Interior Glazed Brick Mortar, Gray (Throughout Interior)
- Joint Compound, White (Throughout Interior)
- Sheetrock, White (Throughout Interior)
- Plaster, Brown Coat

Analytical results of bulk samples collected by LB on 9/11/17 indicate the following materials **do not contain** asbestos (less than 1-percent);



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- Interior Brick Mortar, Gray (Throughout Interior)
- Interior Cinderblock Mortar, Gray (Throughout Interior)
- 1'x1' Pinhole Ceiling Tiles, White (Throughout Interior)
- Mastic associated with 1'x1' Pinhole Ceiling Tiles, Brown (Throughout Interior)
- Fittings Insulation associated with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White (Throughout Interior)
- Joint Compound associated with Sheetrock, White (Throughout Interior)
- Caulking at Metal Exhaust Vent Edge, Gray

Analytical results of bulk samples collected by LB on 5/2/17 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Canvas over Fiberglass Pipe Insulation, Gray (Bldg. C Corridor behind Lockers)
- Mastic associated with 4" Brown Cove Base, Brown (Bldg. C Corridor behind Lockers)
- 4" Brown Cove Base (Bldg. C Corridor behind Lockers)
- Particle Board, Brown (Bldg. C above Lockers)

Analytical results of bulk samples collected by LB on 3/29-30/17 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldgs. A Steam Tunnels)
- Debris (Mudded Joints) inside Wall Penetrations & Ground (Bldgs. A Steam Tunnel)
- Vapor Barrier Material on Fiberglass Pipe Insulation, Black (Bldgs. A, B, C, D, E, F Steam Tunnel)
- Cloth Fabric over Fiberglass Pipe Insulation, Beige (Bldgs. A Steam Tunnels)
- Sealant to Fiberglass Pipe Insulation Seams, White (Bldgs. A, B, C, D, E, F Steam Tunnels)
- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldgs. D Steam Tunnel)
- Paper (Pipe) Insulation Debris on Ground, White (Bldgs. E Steam Tunnels)
- Cementitious Material on Ground, Gray (Bldgs. E Steam Tunnels)
- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Bldg. F Pool Mech Room)
- Vibration Cloth, Black (Bldg. F Pool Mech Room)
- Cloth Fabric to Fiberglass Duct Work Insulation, Beige (Bldg. F Pool Mech Room)
- Mudded Joints associated with Fiberglass Pipe Insulation, Gray (Penthouse Mech Room E219A)



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- Vapor Barrier Material on Fiberglass Pipe Insulation, Black (Penthouse Mech Room E219A)
- Sealant to Fiberglass Pipe Insulation Seams, White (Penthouse Mech Room E219A)
- Ceiling Plaster, Gray Only (Penthouse Mech Room E219A)
- Cloth Fabric to Fiberglass Duct Work Insulation, Beige (Penthouse Mech Room E219A)
- Gaskets, Green (Penthouse Mech Room E219A)

Analytical results of bulk samples collected by LB on 5/31/16 & 6/8/16 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Exterior Brick Mortar, Gray
- Tectum Ceiling Panels, Gray
- Asphalt, Black
- Interior Cinderblock Mortar, Gray
- Ceiling Scratch Coat, Gray
- Canvas Wrap around Fiberglass Pipe & Fitting Insulation, Gray
- Wall Plaster, White & Brown Coats

Analytical results of bulk samples collected by LB on 9/11/13 indicate the following materials **do not contain** asbestos (less than 1-percent);

- Baseboard Glue, Brown
- Baseboard Molding, Brown
- Mastic associated with 9"x9" Floor Tiles, Black
- 2'x4' Ceiling Tiles, Gray
- Wall Ceramic Tile Grout, White
- Floor Ceramic Tile Grout, Brown
- Glazing at Entrance Aluminum Framing/Panels, White
- Interior Brick Mortar, Gray
- Interior Cinderblock Mortar, Gray
- 1'x1' Pinhole Ceiling Tiles, White
- Mastic associated with 1'x1' Pinhole Ceiling Tiles, Brown
- Glazing at Celestory Glass Panel between Rooms & Hallways, Gray
- Fitting Insulation associated with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock Walls/Ceilings, White
- Joint Compound associated with Sheetrock Walls, White
- Caulking at Metal Exhaust Vent Edges, Gray



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The following materials **did not contain asbestos as per 2019 AHERA**.

- 1'x1' Pinhole Pattern Ceiling Tiles, White
- 2'x4' Pinhole Ceiling Tiles, White
- 1'x1' Gouged Ceiling Tiles, White
- 2'x4' Small Pinhole Ceiling Tiles, White
- 1'x1' Fissure Ceiling Tiles, White
- 2'x4' (2'x2' Design) Ceiling Tiles, White
- 2'x2' Small Pinhole Ceiling Tiles, White
- Interior Brick Mortar, Gray
- Interior Cinderblock Mortar, Gray
- Mastic associated with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings associated with Fiberglass Pipe Insulation, Brown
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White
- Joint Compound associated with Sheetrock, White

B. 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);

- Store Front Caulking, Gray (Main Vestibule Entrance)



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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 interior upgrades at the White Plains High School. The following suspect materials were sampled and analyzed for asbestos content by Berger:

4.1 Table 4.1 – Suspect Materials Inspected

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
1	Pool Mech Room	12” Elbows associated with Fiberglass Pipe Insulation, Gray	NAD
2	Pool Mech Room	6” Elbows associated with Fiberglass Pipe Insulation, Gray	NAD
3	Pool Boiler Room	Boiler Breeching, Tan	NAD
4	Pool Boiler Room	Boiler Hatch Sealant, Red	NAD
5	Pool Boiler Room	Gasket, Red	NAD
6	Main Vestibule Entrance	Store Front Caulking, Gray	NAD
7	Main Vestibule Entrance	Terrazzo Flooring, White	NAD
8	Main Vestibule Entrance	Block Wall Mortar, Gray	NAD
9	Exterior Main Vestibule Entrance	Exterior Base Caulking, Gray	NAD
10	Exterior Facade	Exterior Brick Mortar, Gray	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

Location	Material	Quantity	Friability	Condition
Throughout Interior	Electrical Braided Wiring in Electrical Boxes & Conduits	588 LF	Friable	Good

Note 1: If the scope of work dictates penetrations through floors which has ACM floor tiles and mastic a certified abatement contractor will need to perform the penetrations.

Note 2: The quantities are an estimate and should be confirmed during the contractor walkthrough.

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



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4.3 SAMPLE ANALYSIS TABLE

Laboratory analysis results, in tabular form, are included in Appendix A.

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.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Assumed ACM materials have been identified in this inspection that may be impacted as part of the Interior upgrades at the White Plains High School.

The ACM and PCB inspection was conducted at the request of the White Plains City School District based on the design drawings dated September 2019 submitted by H2M Architects & Engineers for the proposed interior upgrades at the White Plains High School. Any change in the scope of work will require further investigation to accurately classify any additional ACM and PCB resulting from the modified or updated scope of work.

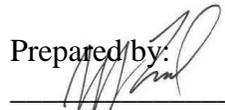
7.0 REPORT CERTIFICATIONS

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of LB's efforts for the environmental inspection work for the White Plains High School.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of LB's site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which LB is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions solely upon LB'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:



Marylin Luccioni
NYS DOL Inspector

Reviewed by:



Craig Napolitano, CHMM
Vice President, Emergency Management & IH Services



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**APPENDIX A:
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM**



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APPENDIX A SAMPLE ANALYSIS RESULTS IN TABULAR FORM WHITE PLAINS HIGH SCHOOL 550 NORTH STREET WHITE PLAINS NY 10605

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
01	01	Pool Mechanical Room	12" Elbows associated with Fiberglass Pipe Insulation, Gray	NAD	---
01	02	Pool Mechanical Room	12" Elbows associated with Fiberglass Pipe Insulation, Gray	NAD	---
01	03	Pool Mechanical Room	12" Elbows associated with Fiberglass Pipe Insulation, Gray	NAD	---
02	04	Pool Mechanical Room	6" Elbows associated with Fiberglass Pipe Insulation, Gray	NAD	---
02	05	Pool Mechanical Room	6" Elbows associated with Fiberglass Pipe Insulation, Gray	NAD	---
02	06	Pool Mechanical Room	6" Elbows associated with Fiberglass Pipe Insulation, Gray	NAD	---
03	07	Pool Boiler Room	Boiler Breeching, Tan	NAD	---
03	08	Pool Boiler Room	Boiler Breeching, Tan	NAD	---
03	09	Pool Boiler Room	Boiler Breeching, Tan	NAD	---
04	10	Pool Boiler Room	Boiler Hatch Sealant, Red	NAD	NAD
04	11	Pool Boiler Room	Boiler Hatch Sealant, Red	NAD	NAD
05	12	Pool Boiler Room	Gasket, Red	NAD	NAD
05	13	Pool Boiler Room	Gasket, Red	NAD	NAD
06	14	Main Vestibule Entrance	Store Front Caulking, Gray	NAD	NAD
06	15	Main Vestibule Entrance	Store Front Caulking, Gray	NAD	NAD
07	16	Main Vestibule Entrance	Terrazzo Flooring, White	NAD	---

Bold = Positive for ACM
NAD = No Asbestos Detected

N/A = Not Applicable
NA/PS = Not analyzed/ positive sample



Final Survey Report for Environmental Inspection Services

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
07	17	Main Vestibule Entrance	Terrazzo Flooring, White	NAD	---
08	18	Main Vestibule Entrance	Block Wall Mortar, Gray	NAD	---
08	19	Main Vestibule Entrance	Block Wall Mortar, Gray	NAD	---
09	20	Exterior Main Vestibule Entrance	Exterior Base Caulking, Gray	NAD	NAD
09	21	Exterior Main Vestibule Entrance	Exterior Base Caulking, Gray	NAD	NAD
10	22	Exterior Facade	Exterior Brick Mortar, Gray	NAD	---
10	23	Exterior Facade	Exterior Brick Mortar, Gray	NAD	---

Bold = Positive for ACM
NAD = No Asbestos Detected

N/A = Not Applicable
NA/PS = Not analyzed/ positive sample



Final Report of Environmental Inspection Services

**APPENDIX B:
ASBESTOS BULK SAMPLE FIELD DATA SHEETS
WITH CHAIN OF CUSTODY
AND LABORATORY RESULTS**



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com / carleplacelab@emsl.com>

EMSL Order: 061921672
Customer ID: LBAP78
Customer PO: 2043479.17
Project ID:

Attention: Marvin Luccioni
Louis Berger U.S., Inc
96 Morton Street
8th floor
New York, NY 10014
Phone: (718) 730-2741
Fax:
Received Date: 09/18/2019 4:28 PM
Analysis Date: 09/20/2019 - 09/21/2019
Collected Date: 09/17/2019
Project: W.P.H.S. at 550 North St., W.P., NY, Interior & Exterior, Renovation, 2043479.17

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 01-01 061921672-0001		Description	Pool Mech. Room - 12" Elbows assoc. w./ Fiberglass Pipe Insul., Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ Tan/ White	15.00% Cellulose 30.00% Min. Wool	40.00% Ca Carbonate 15.00% 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 01-02 061921672-0002		Description	Pool Mech. Room - 12" Elbows assoc. w./ Fiberglass Pipe Insul., Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ Tan/ White	12.00% Cellulose 25.00% Min. Wool	35.00% Ca Carbonate 28.00% 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 01-03 061921672-0003		Description	Pool Mech. Room - 12" Elbows assoc. w./ Fiberglass Pipe Insul., Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/21/2019	Gray/ Tan	20.00% Min. Wool	40.00% 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 02-04 061921672-0004		Description	Pool Mech. Room - 6" Elbows assoc. w./ Fiberglass Pipe Insul., Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ Tan/ White	3.00% Cellulose 35.00% Min. Wool	35.00% Ca Carbonate 27.00% 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 02-05 061921672-0005		Description	Pool Mech. Room - 6" Elbows assoc. w./ Fiberglass Pipe Insul., Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ Tan/ White	7.00% Cellulose 25.00% Min. Wool	30.00% Ca Carbonate 38.00% 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: 09/21/2019 17:00:37



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061921672
Customer ID: LBAP78
Customer PO: 2043479.17
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 02-06 <i>061921672-0006</i>		Description	Pool Mech. Room - 6" Elbows assoc. w./ Fiberglass Pipe Insul., Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/21/2019	Gray/ Tan	5.00% Cellulose 15.00% Min. Wool	30.00% Ca Carbonate 50.00% 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 03-07 <i>061921672-0007</i>		Description	Pool Mech. Room - Boiler Breeching, Tan		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	White/ Yellow	20.00% Cellulose	60.00% Matrix 20.00% 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 03-08 <i>061921672-0008</i>		Description	Pool Mech. Room - Boiler Breeching, Tan		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	White/ Yellow	25.00% Cellulose	55.00% Matrix 20.00% 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 03-09 <i>061921672-0009</i>		Description	Pool Mech. Room - Boiler Breeching, Tan		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/21/2019	Tan	15.00% Cellulose	50.00% 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
Sample ID 04-10 <i>061921672-0010</i>		Description	Pool Mech. Room - Boiler Hatch Sealant, Red		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Red	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Red		100.00% Other	None Detected
Sample ID 04-11 <i>061921672-0011</i>		Description	Pool Mech. Room - Boiler Hatch Sealant, Red		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Red	1.60% Glass	98.40% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Red		100.00% Other	None Detected

Initial report from: 09/21/2019 17:00:37



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061921672
Customer ID: LBAP78
Customer PO: 2043479.17
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 05-12 <i>061921672-0012</i>		Description	Pool Mech. Room - Gasket, Red		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Red		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Red		100.00% Other	None Detected
Sample ID 05-13 <i>061921672-0013</i>		Description	Pool Mech. Room - Gasket, Red		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Red		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Red		100.00% Other	None Detected
Sample ID 06-14 <i>061921672-0014</i>		Description	Main Entrance - Storefront Caulking, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Gray		100.00% Other	None Detected
Sample ID 06-15 <i>061921672-0015</i>		Description	Main Entrance - Storefront Caulking, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Gray		100.00% Other	None Detected
Sample ID 07-16 <i>061921672-0016</i>		Description	Main Entrance - Terrazzo, White		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ White/ Red	3.00% Cellulose	60.00% Ca Carbonate 17.00% 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 07-17 <i>061921672-0017</i>		Description	Main Entrance - Terrazzo, White		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ White/ Red	2.00% Cellulose	65.00% Ca Carbonate 18.00% 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

Initial report from: 09/21/2019 17:00:37



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061921672
Customer ID: LBAP78
Customer PO: 2043479.17
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 08-18 <i>061921672-0018</i>		Description	Main Entrance - Block Mortar, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ Tan/ White	5.00% Cellulose	35.00% Ca Carbonate 60.00% 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 08-19 <i>061921672-0019</i>		Description	Main Entrance - Block Mortar, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/21/2019	Gray/ Tan	5.00% Cellulose	15.00% Ca Carbonate 50.00% Non-fibrous (other) 30.00% 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 09-20 <i>061921672-0020</i>		Description	Main Entrance - Base Caulking, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Gray		100.00% Other	None Detected
Sample ID 09-21 <i>061921672-0021</i>		Description	Main Entrance - Base Caulking, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2019	Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2019	Gray		100.00% Other	None Detected
Sample ID 10-22 <i>061921672-0022</i>		Description	Main Entrance - Exterior Brick Mortar, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/20/2019	Gray/ Tan		30.00% Ca Carbonate 5.00% Non-fibrous (other) 65.00% 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 10-23 <i>061921672-0023</i>		Description	Main Entrance - Exterior Brick Mortar, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/21/2019	Gray/ Tan	3.00% Cellulose	20.00% Ca Carbonate 27.00% Non-fibrous (other) 50.00% Quartz	None Detected
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

Initial report from: 09/21/2019 17:00:37



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061921672
Customer ID: LBAP78
Customer PO: 2043479.17
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: 9/18/2019
Analysis Completed Date: 9/20/2019

Sample Receipt Time: 4:28 PM
Analysis Completed Time: 6:34 PM

Analyst(s):

Erick Rosa PLM NYS 198.1 Friable (5)

Tomas Montes De Oca PLM NYS 198.1 Friable (10)

Tomas Montes De Oca PLM NYS 198.6 NOB (8)

Rosemary Ortega TEM NYS 198.4 NOB (8)

Samples reviewed and approved by:

Daniel Clarke, Asbestos 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 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. Carle Place, NY NYS ELAP 11469

Initial report from: 09/21/2019 17:00:37

061921672

Order ID: 061921672



LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 1 OF 2

LB PROJ 2043479.17
 CLIENT: W.P.S.D.

LOCATION(S) SURVEYED: INTERIOR & EXTERIOR

PROPOSED PROJECT: RENOVATION

PROJECT SITE: W.P.H.S @ 550 NORTH ST., W.P. NY

DATE(S) OF INSPECTION: 09/17/19

Project Manager: M. Muccioni

Inspector(s) M. Muccioni, J. Garcia & L. Nevarez

LOUIS BERGER
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
 ADDRESS: 98 Morton Street, 8 Floor, New York, NY 10014

RESULTS TO: _____
Muccioni@louisberger.com

TURNAROUND TIME: 72
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
01	01	12" ELBOWS ASSOC. w/ FIBERGLASS PIPE INS., GRAY	Pool MECH Room		
↓	02				
↓	03				
02	04	6" ELBOWS ASSOC. w/ FIBERGLASS PIPE INS., GRAY			
↓	05				
↓	06				
03	07	BOILER BREACHINGS, TAN			
↓	08				
↓	09				
04	10	BOILER HATCH SEALANTS, RED			
↓	11				
05	12	GASLET, RED			

19 SEP 18 PM 4:28
 ENVI ANALYTICAL, INC.
 CARLE PLACE, NY

CHAIN OF CUSTODY

Relinquished by: (print) <u>M. Muccioni</u>	(Sign) <u>[Signature]</u>	Date: <u>09/18/19</u>	AM/PM	Relinquished by: (print) _____	(Sign) _____	Date: _____	AM/PM	Relinquished by: (print) _____	(Sign) _____	Date: _____	AM/PM
Received by: (print) <u>Alyssa McDonald</u>	(Sign) <u>[Signature]</u>	Date: <u>9/18/19</u>	4:28 PM	Received by: (print) _____	(Sign) _____	Date: _____	AM/PM	Received by: (print) _____	(Sign) _____	Date: _____	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group. T.M. (E)
Tomás Montalvo Dec 9/20/19
[Signature] 9/21/19
[Signature] 9/21/19

Page 1 OF 2

061921672

OrderID: 061921672

LB PROJ 2043479.17 LOCATION(S) SURVEYED: INTERIOR & EXTERIOR
 CLIENT: W.P.S.D. PROPOSED PROJECT: RENOVATION
 PROJECT SITE: W.P.H.S @ 550 NORTH ST., W.P. NY DATE(S) OF INSPECTION: 09/17/19
 Project Manager: _____ Inspector(s) M. MUCCIONI, J. GARCIA & L. NEVAREZ

LOUIS BERGER RESULTS TO: _____ TURNAROUND TIME:
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341 4 HR. 24 HRS. 48 HRS. 72 HRS.
 ADDRESS: 98 Morton Street, 8 Floor, New York, NY 10014 MUCCIONI@LOUISBERGER.COM

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
05	13	GASKET, RED	POOL MECH ROOM		
06	14	STOREFRONT CAULKING, GRAY	MAIN ENTRANCE		
↓	15	↓			
07	16	TERAZZO, WHITE			
↓	17	↓			
08	18	BLOCK MORTAR, GRAY			
↓	19	↓			
09	20	BASE CAULKING, GRAY			
↓	21	↓			
10	22	EXTERIOR BRICK MORTAR, GRAY			
↓	23	↓			

ANALYTICAL, INC.
 CARLE PLACE, NY
 19 SEP 18 PM 4:28

CHAIN OF CUSTODY

Relinquished by: (print) <u>M. MUCCIONI</u> (Sign) <u>[Signature]</u> 09/18/19 AM/PM	Relinquished by: (print) _____ (Sign) _____ 1/1 AM/PM	Relinquished by: (print) _____ (Sign) _____ 1/1 AM/PM
Received by: (print) <u>Alyssa McDonald</u> (Sign) <u>[Signature]</u> 9/18/19 4:28 PM AM/PM	Received by: (print) _____ (Sign) _____ 1/1 AM/PM	Received by: (print) _____ (Sign) _____ 1/1 AM/PM

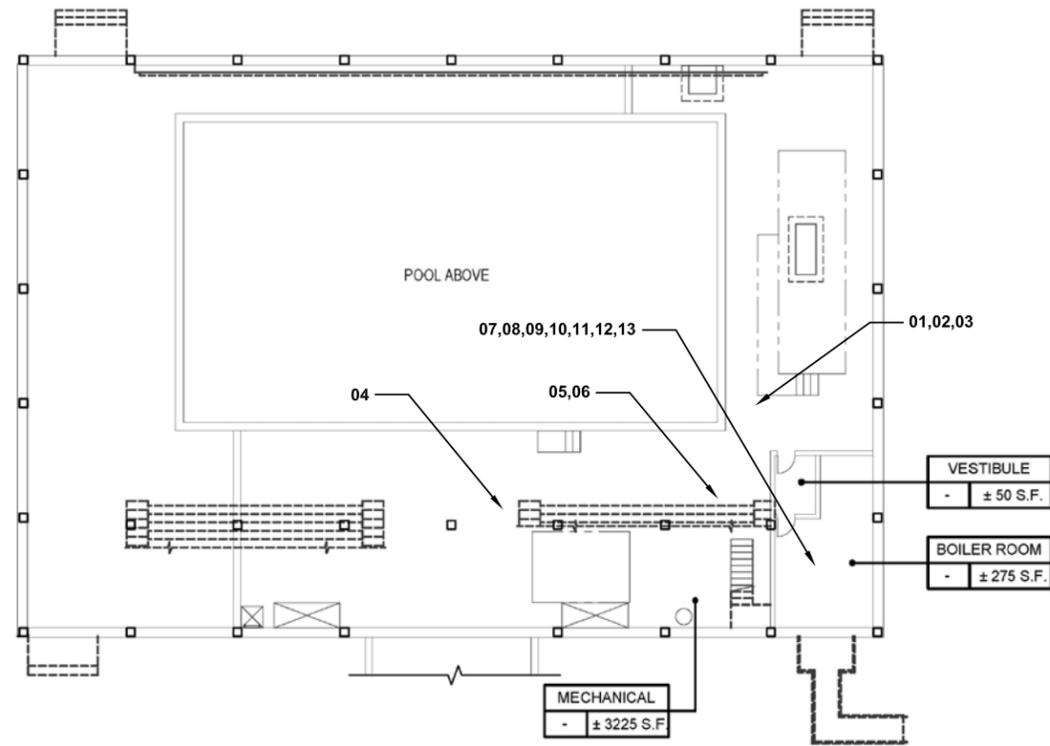
GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group. T.M. (20) Tomas Montes de Oca 9/20/19 [Signature] 9/21/19
[Signature] 9/21/19

Page 2 of 2

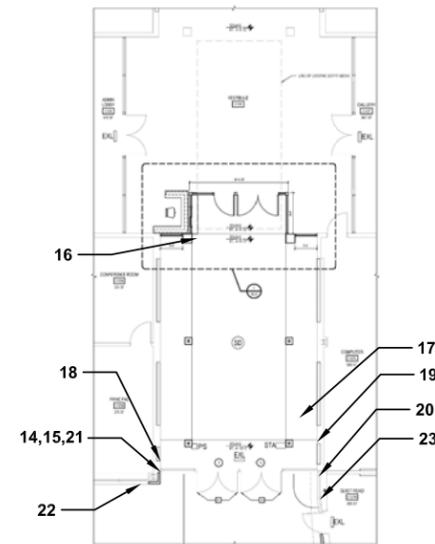


Final Report of Environmental Inspection Services

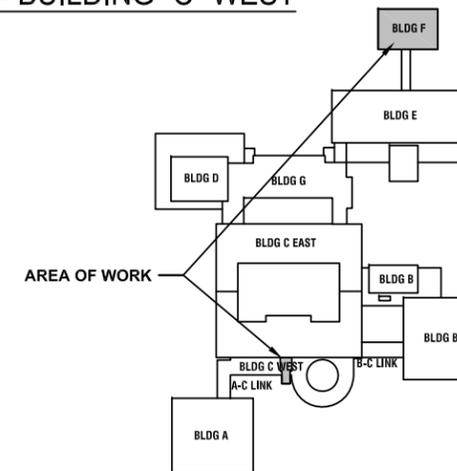
**APPENDIX C:
ASBESTOS BULK SAMPLE LOCATION DRAWINGS**



1 BASEMENT FLOOR PLAN - BUILDING "F"
BSL001 SCALE: NOT TO SCALE



2 SECURITY VESTIBULE PLAN - BUILDING "C" WEST
BSL001 SCALE: NOT TO SCALE



KEY PLAN
SCALE: NOT TO SCALE

LOCATION PLAN



ENVIRONMENTAL CONSULTANT



565 TAXTER ROAD, SUITE 510
ELMSFORD, NY 10523
TEL. 914.798.3710 FAX 914.592.1734 WWW.WSP.COM



REVISIONS:

NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

**WHITE PLAINS CITY
SCHOOL DISTRICT**

**INTERIOR UPGRADES AND SITE WORK
AT WHITE PLAINS HIGH SCHOOL
580 NORTH STREET
WHITE PLAINS, NY 10605**

DRAWING TITLE:

**BULK SAMPLE LOCATIONS
BUILDING "F" BASEMENT FLOOR AND
BUILDING "C" SECURITY VESTIBULE PLAN**

DRAWN BY: J. GARCIA SCALE: NOT TO SCALE

INSP./INV.: M. LUCCIONI DATE: 09/25/2019

CERTIFICATE NO.: 03-11021 DRAWING NUMBER

CHECKED BY: C. NAPOLITANO

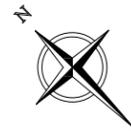
BSL001

DRAWING NUMBER
1 OF 1

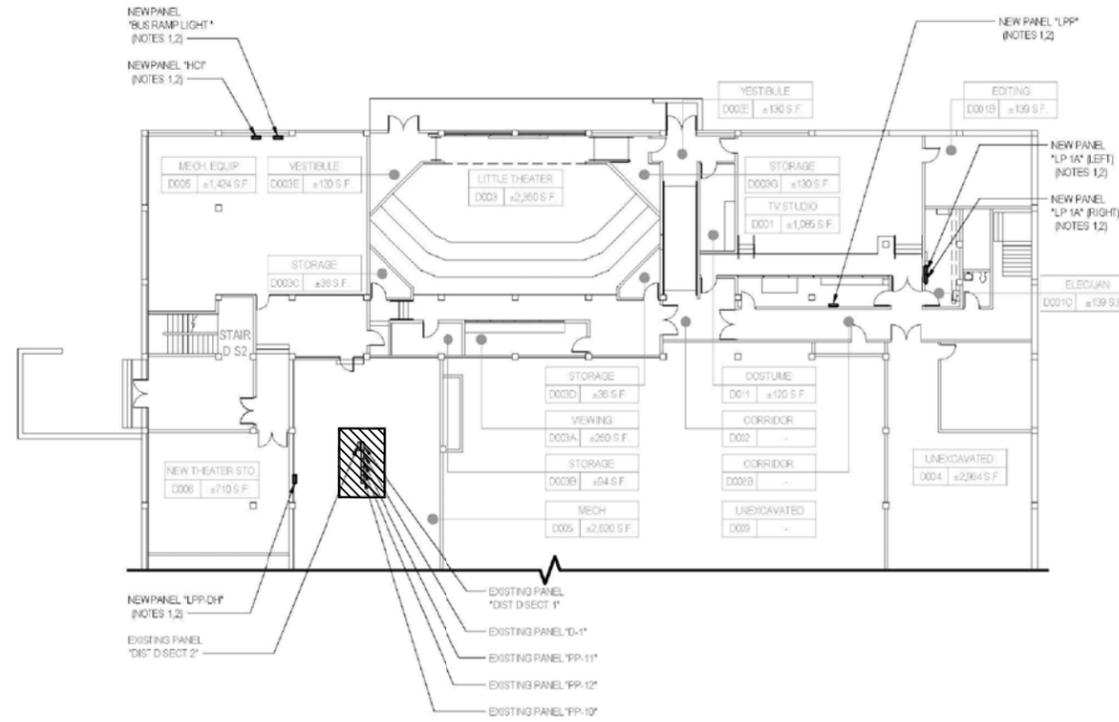


Final Report of Environmental Inspection Services

**APPENDIX D:
ASBESTOS CONTAINING MATERIALS LOCATION
DRAWINGS**

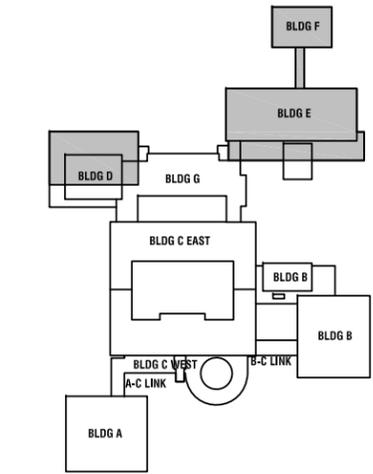


1 BUILDING "E" AND "F" - BASEMENT FLOOR PLAN
 ACM001 SCALE: NOT TO SCALE



2 BUILDING "D" - BASEMENT FLOOR PLAN
 ACM001 SCALE: NOT TO SCALE

LEGEND
 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



ENVIRONMENTAL CONSULTANT



565 TAXTER ROAD, SUITE 510
 ELMSFORD, NY 10523
 TEL. 914.798.3710 FAX 914.592.1734 WWW.WSP.COM



REVISIONS:

NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

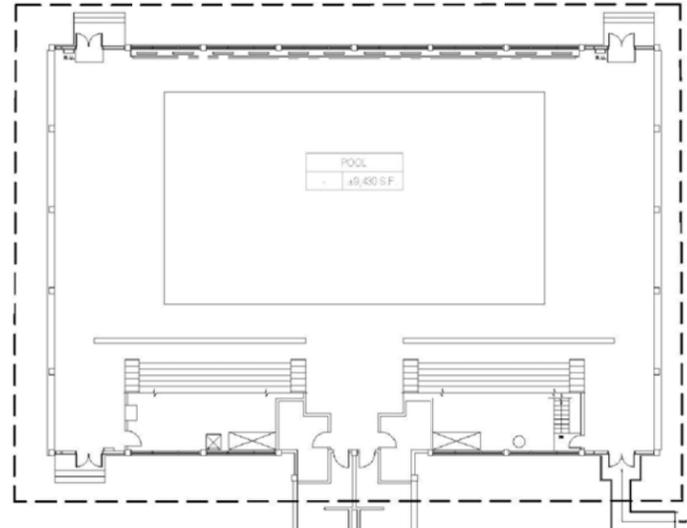
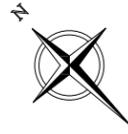
WHITE PLAINS CITY SCHOOL DISTRICT

INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

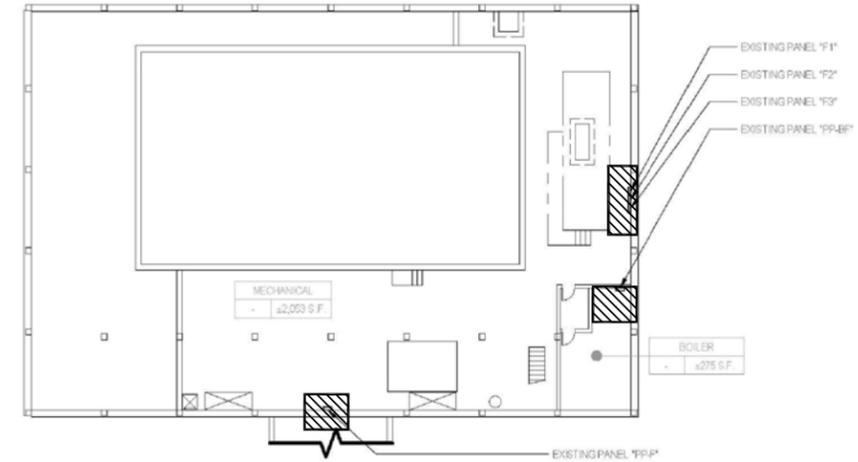
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 BUILDING "D", "E" AND "F"
 BASEMENT FLOOR PLAN**

DRAWN BY: J. GARCIA SCALE: NOT TO SCALE
 INSP./INV.: M. LUCCIONI DATE: 09/25/2019
 CERTIFICATE NO.: 03-11021 DRAWING NUMBER

CHECKED BY: C. NAPOLITANO
ACM001
 DRAWING NUMBER
 1 OF 12

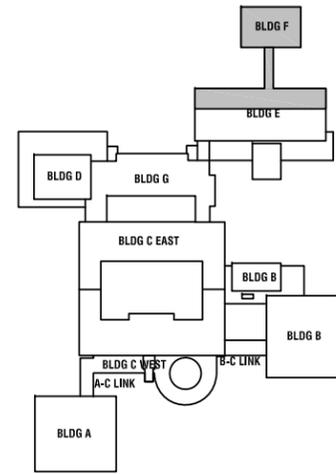


1 BUILDING "E" AND "F" - BASEMENT LEVEL 2 PLAN
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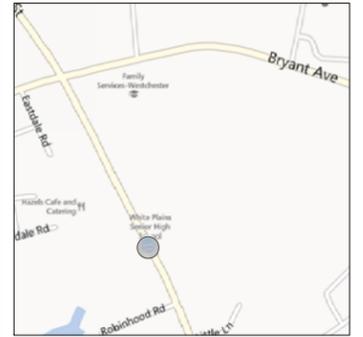
2 BUILDING "E" AND "F" - BASEMENT LEVEL 3 PLAN
 ACM002 SCALE: NOT TO SCALE

LEGEND
 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



ENVIRONMENTAL CONSULTANT



565 TAXTER ROAD, SUITE 510
 ELMSFORD, NY 10523
 TEL. 914.798.3710 FAX 914.592.1734 WWW.WSP.COM



REVISIONS:

NUMBER	DESCRIPTION	DATE
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WHITE PLAINS CITY SCHOOL DISTRICT

INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:

**ASBESTOS CONTAINING MATERIALS
 BUILDING "E" AND "F"
 BASEMENT LEVEL 2 AND 3 PLAN**

DRAWN BY: J. GARCIA SCALE: NOT TO SCALE

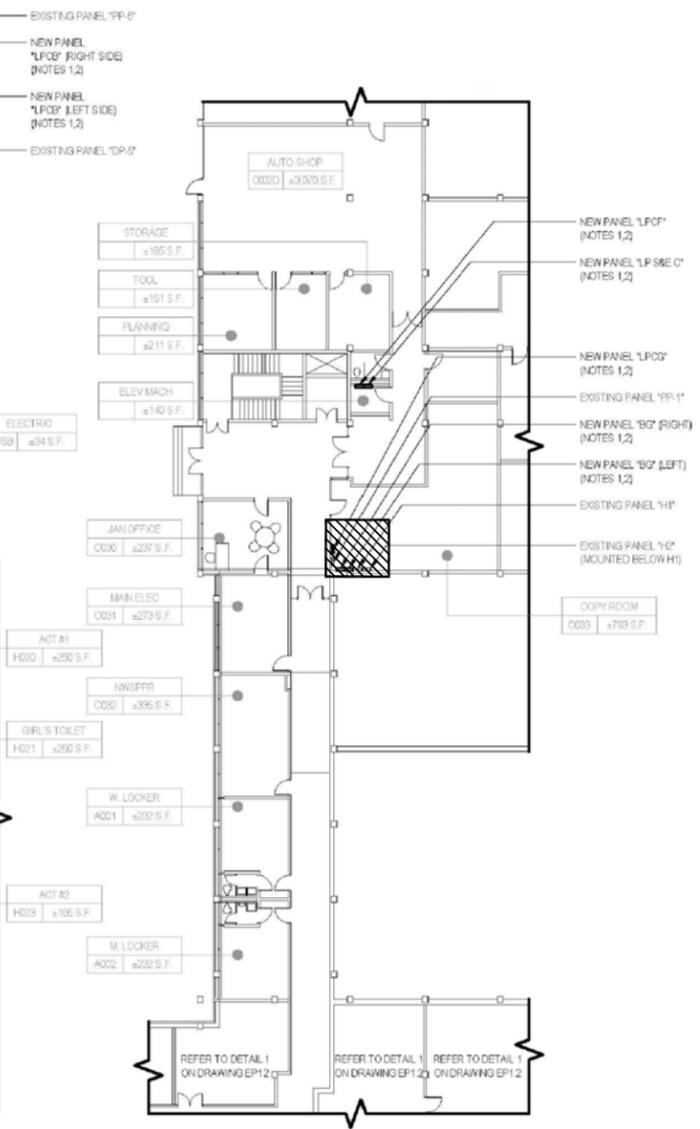
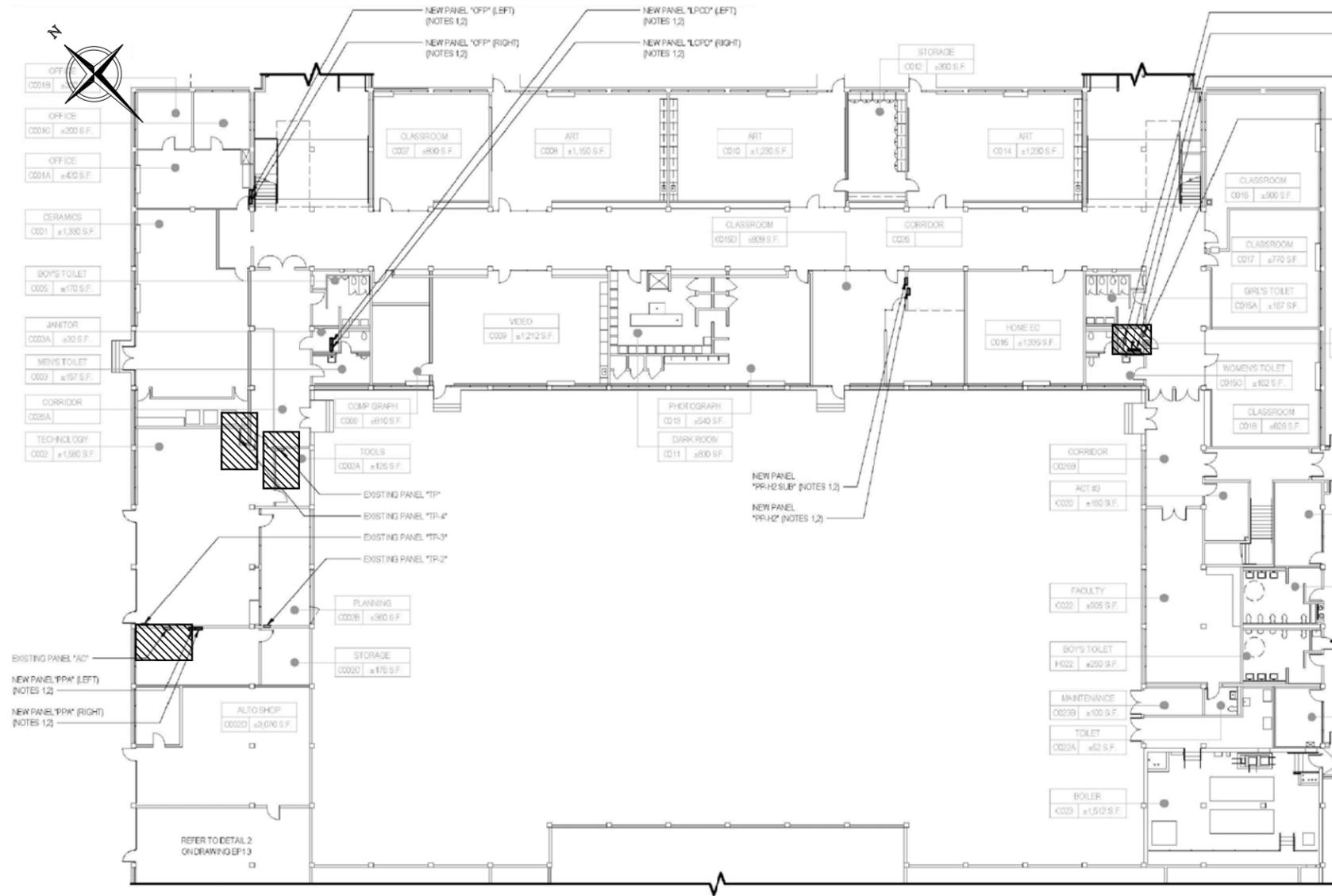
INSP./INV.: M. LUCCIONI DATE: 09/25/2019

CERTIFICATE NO.: 03-11021 DRAWING NUMBER

CHECKED BY: C. NAPOLITANO

ACM002

DRAWING NUMBER
 2 OF 12



1 BUILDING "C" EAST - GROUND FLOOR PLAN
 ACM004 SCALE: NOT TO SCALE

2 BUILDING "C" WEST - GROUND FLOOR PLAN
 ACM004 SCALE: NOT TO SCALE

LEGEND

 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS

LOCATION PLAN



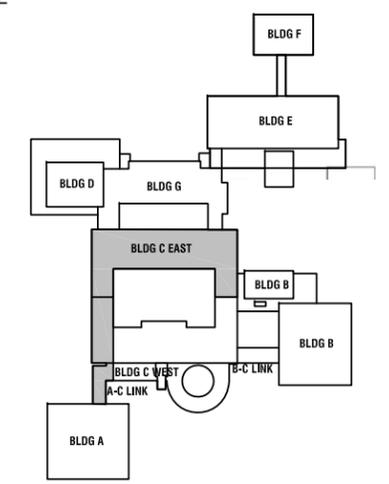
ENVIRONMENTAL CONSULTANT

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 ELMSFORD, NY 10523
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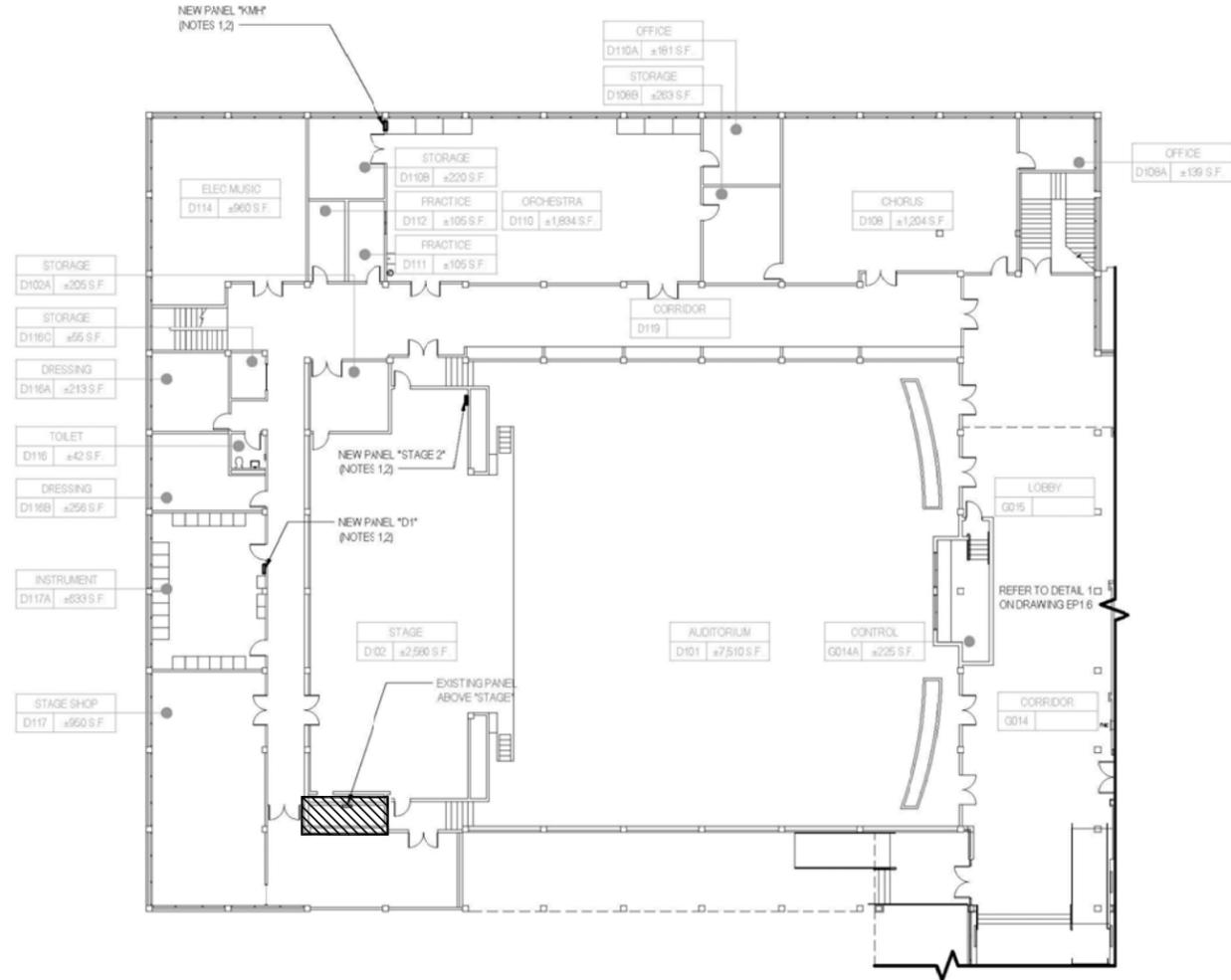
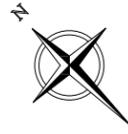
KEY PLAN
 SCALE: NOT TO SCALE

WHITE PLAINS CITY SCHOOL DISTRICT
 INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:
ASBESTOS CONTAINING MATERIALS BUILDING "C" GROUND FLOOR PLAN

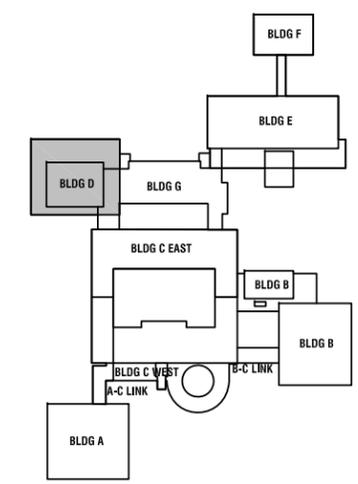
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 INSP./INV.: M. LUCCIONI DATE: 09/25/2019
 CERTIFICATE NO.: 03-11021 DRAWING NUMBER

CHECKED BY: C. NAPOLITANO
ACM004
 DRAWING NUMBER
 4 OF 12



LEGEND
 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS

1 BUILDING "D" - GROUND FLOOR PLAN
 ACM005 SCALE: NOT TO SCALE



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



ENVIRONMENTAL CONSULTANT

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 ELMSFORD, NY 10523
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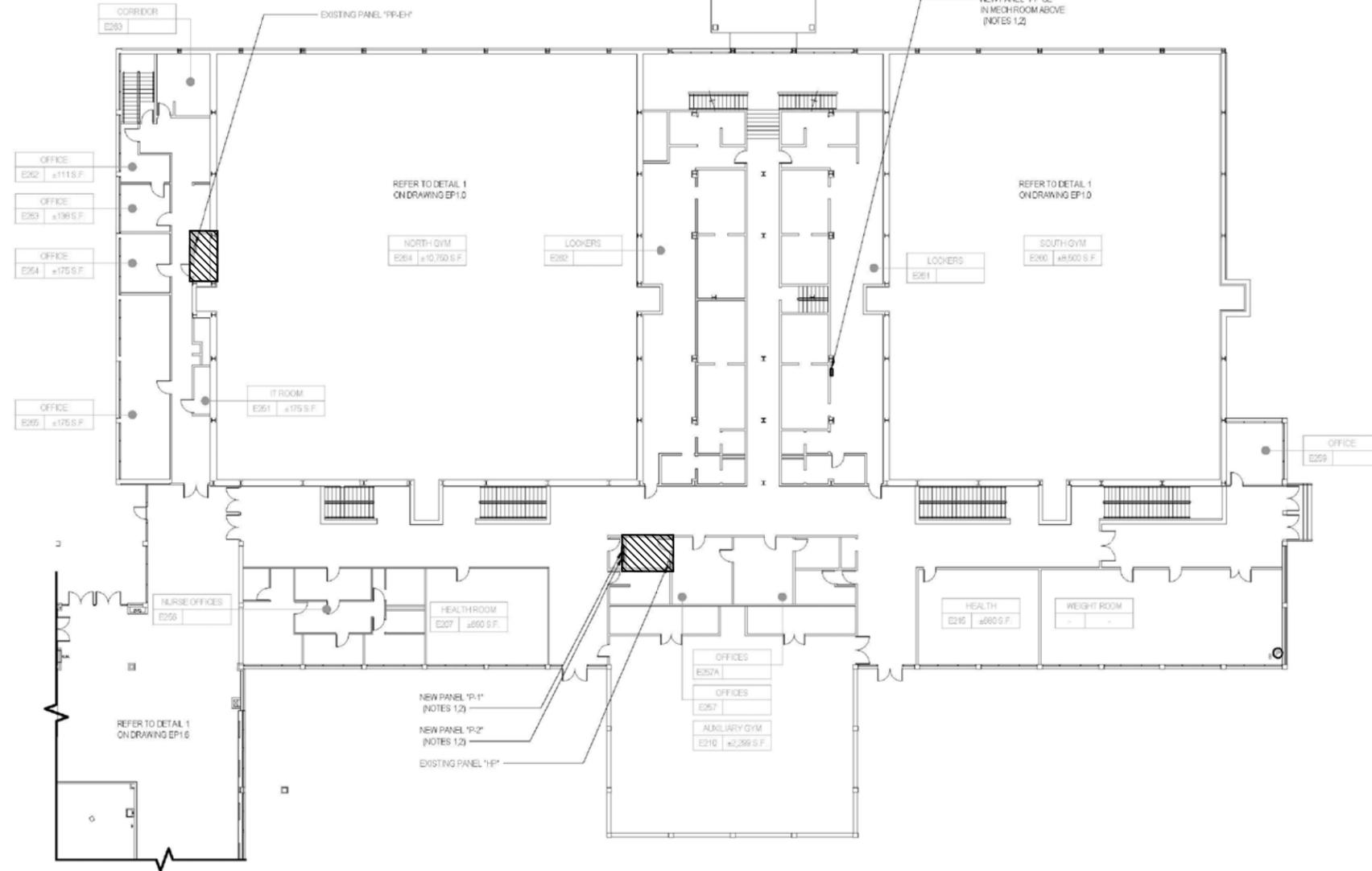
WHITE PLAINS CITY SCHOOL DISTRICT
 INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:
**ASBESTOS CONTAINING MATERIALS
 BUILDING "D"
 GROUND FLOOR PLAN**

DRAWN BY: J. GARCIA	SCALE: NOT TO SCALE
INSP./INV.: M. LUCCIONI	DATE: 09/25/2019
CERTIFICATE NO.: 03-11021	DRAWING NUMBER
CHECKED BY: C. NAPOLITANO	

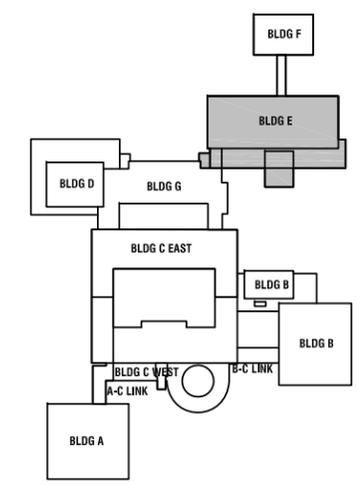
ACM005

DRAWING NUMBER
 5 OF 12



LEGEND
 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS

1 BUILDING "E" - GROUND FLOOR PLAN
 ACM006 SCALE: NOT TO SCALE



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



ENVIRONMENTAL CONSULTANT

 565 TAXTER ROAD, SUITE 510
 ELMSFORD, NY 10523
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WHITE PLAINS CITY SCHOOL DISTRICT

INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

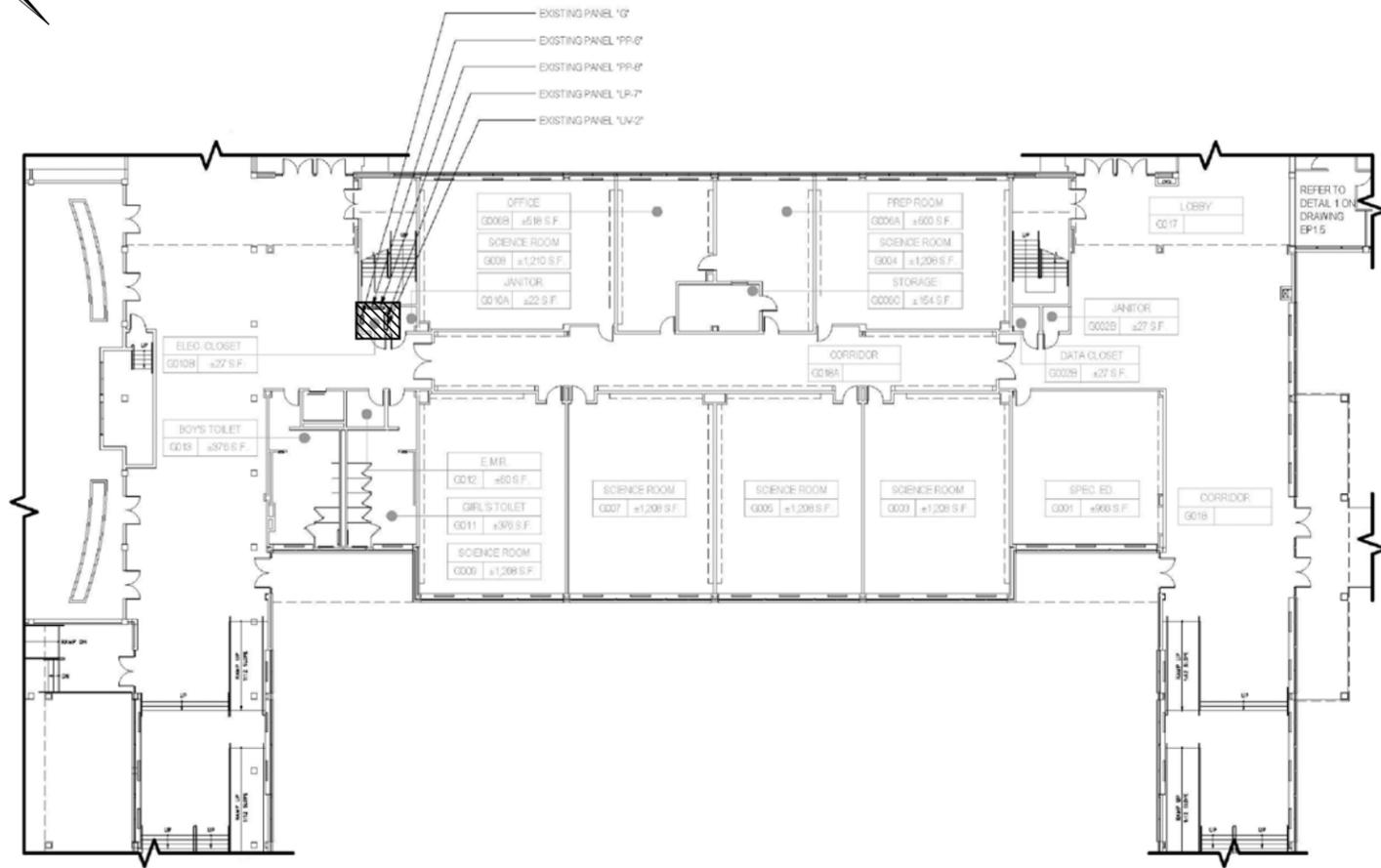
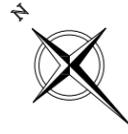
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**ASBESTOS CONTAINING MATERIALS
 BUILDING "E"
 GROUND FLOOR PLAN**

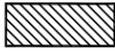
DRAWN BY: J. GARCIA	SCALE: NOT TO SCALE
INSP./INV.: M. LUCCIONI	DATE: 09/25/2019
CERTIFICATE NO.: 03-11021	DRAWING NUMBER
CHECKED BY: C. NAPOLITANO	

ACM006

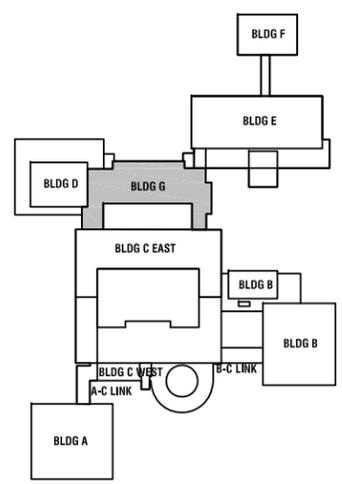
DRAWING NUMBER
 6 OF 12



LEGEND

 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS

1 BUILDING "G" - GROUND FLOOR PLAN
 (ACM007) SCALE: NOT TO SCALE



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



ENVIRONMENTAL CONSULTANT

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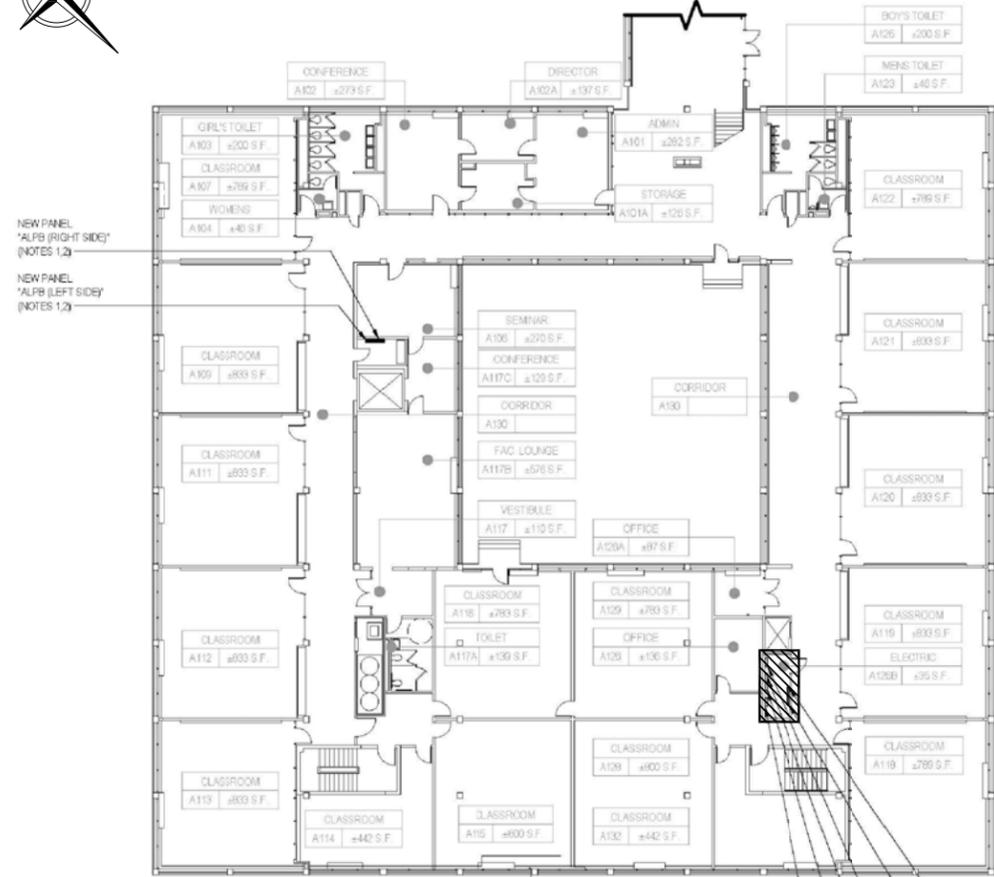
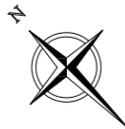
WHITE PLAINS CITY SCHOOL DISTRICT
 INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:
**ASBESTOS CONTAINING MATERIALS
 BUILDING "G"
 GROUND FLOOR PLAN**

DRAWN BY: J. GARCIA	SCALE: NOT TO SCALE
INSP./INV.: M. LUCCIONI	DATE: 09/25/2019
CERTIFICATE NO.: 03-11021	DRAWING NUMBER
CHECKED BY: C. NAPOLITANO	

ACM007

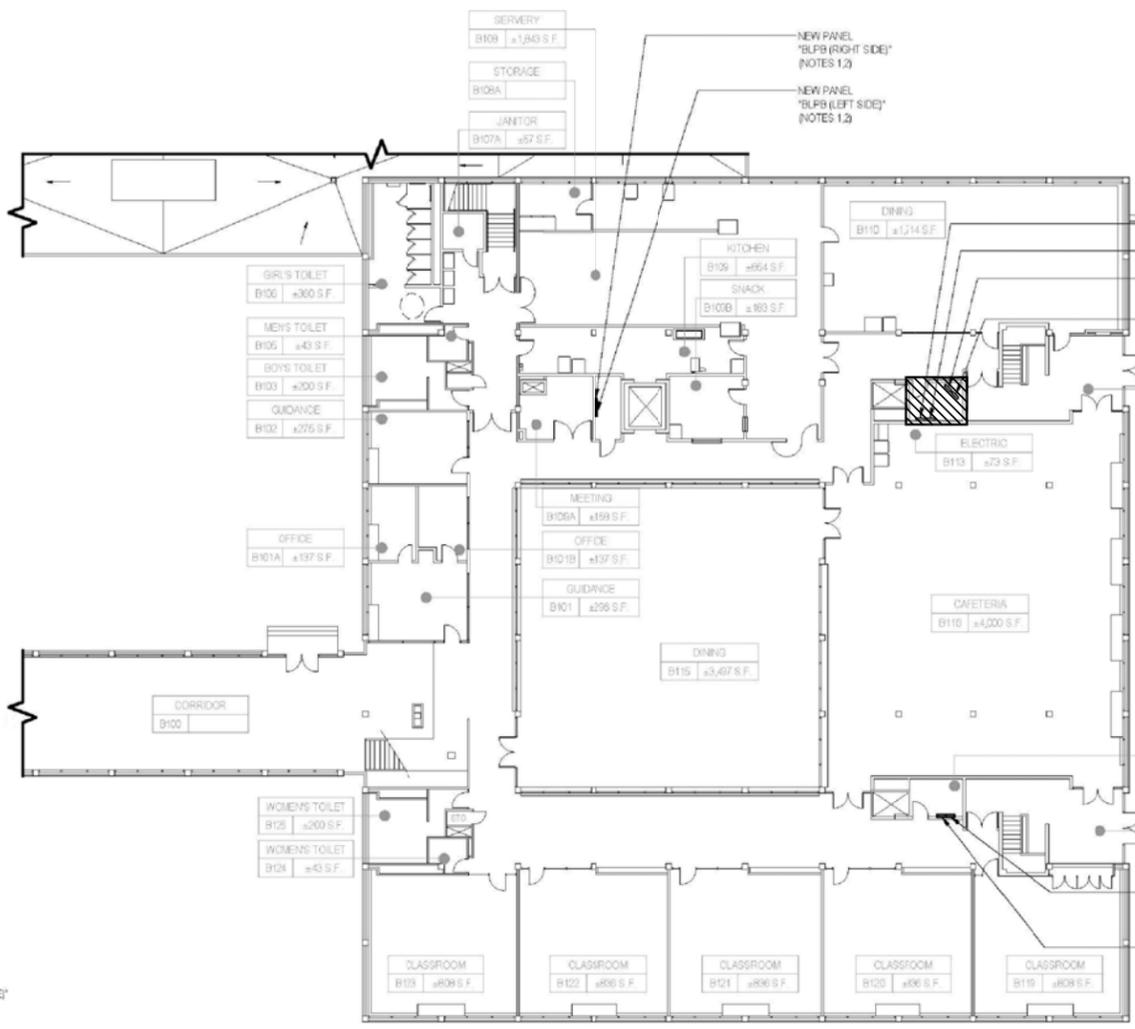
DRAWING NUMBER
 7 OF 12



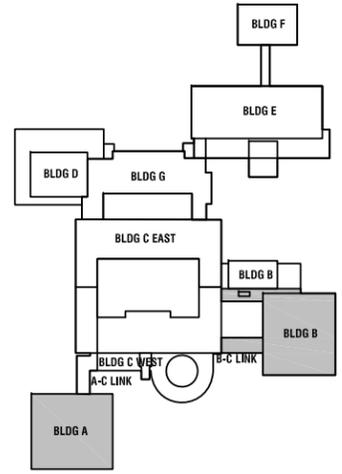
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 ACM008 SCALE: NOT TO SCALE

LEGEND
 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS

- NEW PANEL "ALFA (LEFT SIDE)" (NOTES 1,2)
- NEW PANEL "ALFA (RIGHT SIDE)" (NOTES 1,2)
- EXISTING PANEL "DP-1A"
- EXISTING PANEL "PP-2A"
- EXISTING PANEL "PP-1A"
- EXISTING PANEL "LP-1"

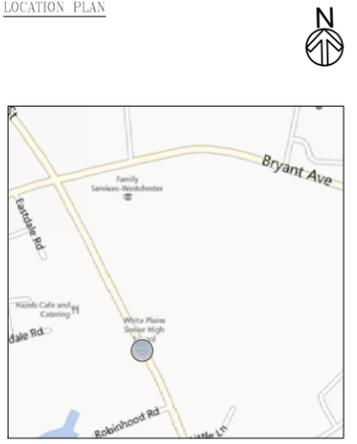


2 BUILDING "B" - FIRST FLOOR PLAN
 ACM008 SCALE: NOT TO SCALE



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



ENVIRONMENTAL CONSULTANT

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WHITE PLAINS CITY SCHOOL DISTRICT

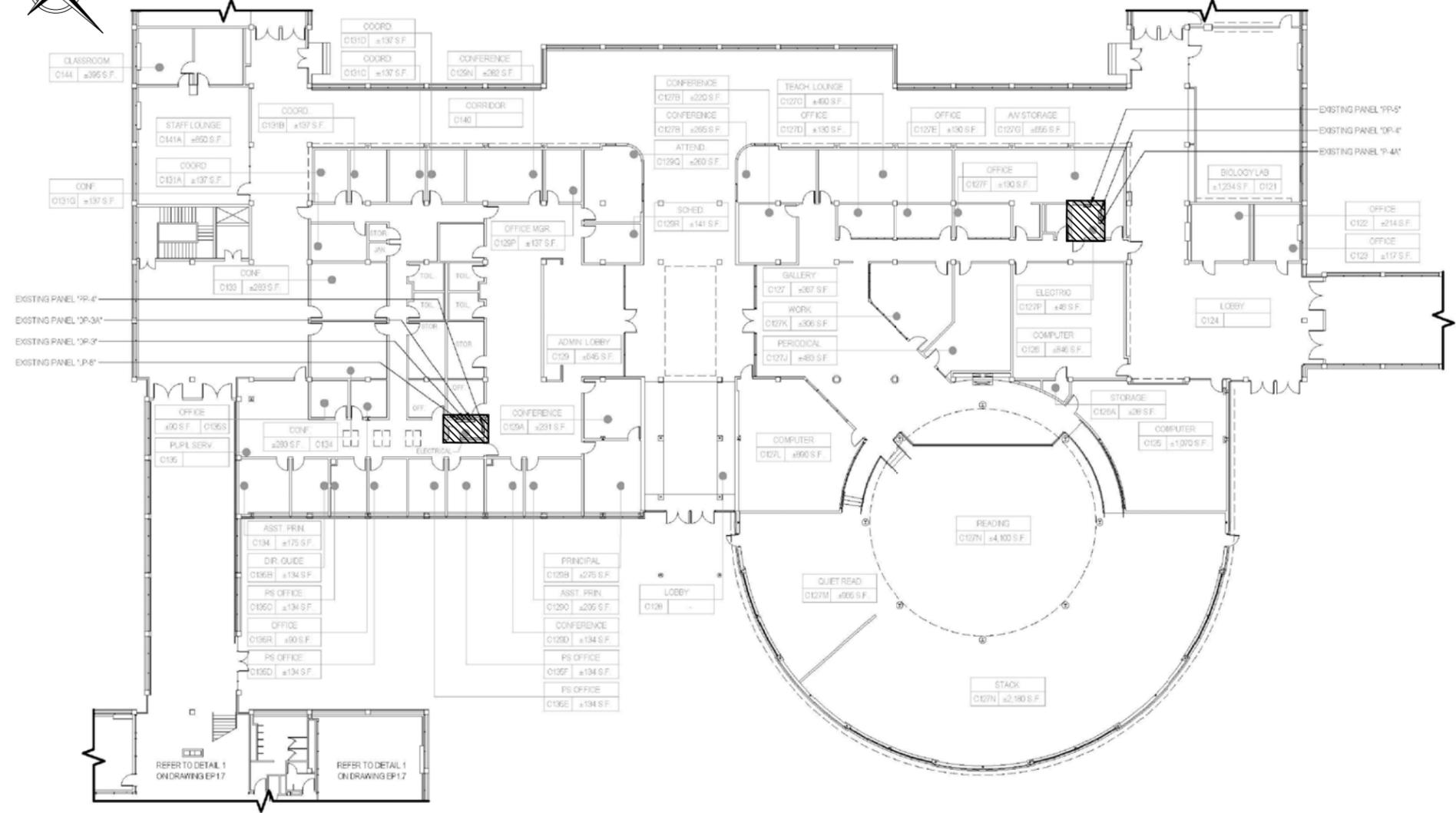
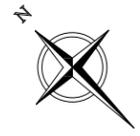
INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

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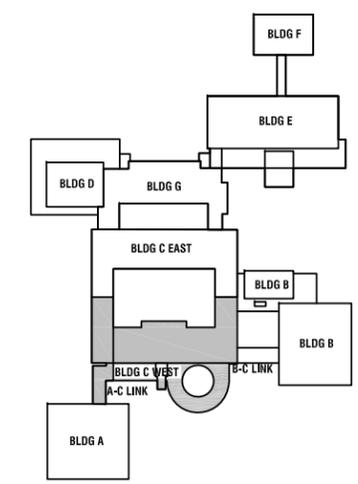
ASBESTOS CONTAINING MATERIALS BUILDING "A" AND "B" FIRST FLOOR PLAN

DRAWN BY: J. GARCIA SCALE: NOT TO SCALE
 INSP./INV.: M. LUCCIONI DATE: 09/25/2019
 CERTIFICATE NO.: 03-11021 DRAWING NUMBER

CHECKED BY: C. NAPOLITANO
ACM008
 DRAWING NUMBER
 8 OF 12



1 BUILDING "C" WEST - FIRST FLOOR PLAN
ACM009 SCALE: NOT TO SCALE



KEY PLAN
SCALE: NOT TO SCALE

LOCATION PLAN



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WHITE PLAINS CITY SCHOOL DISTRICT

**INTERIOR UPGRADES AND SITE WORK
AT WHITE PLAINS HIGH SCHOOL
580 NORTH STREET
WHITE PLAINS, NY 10605**

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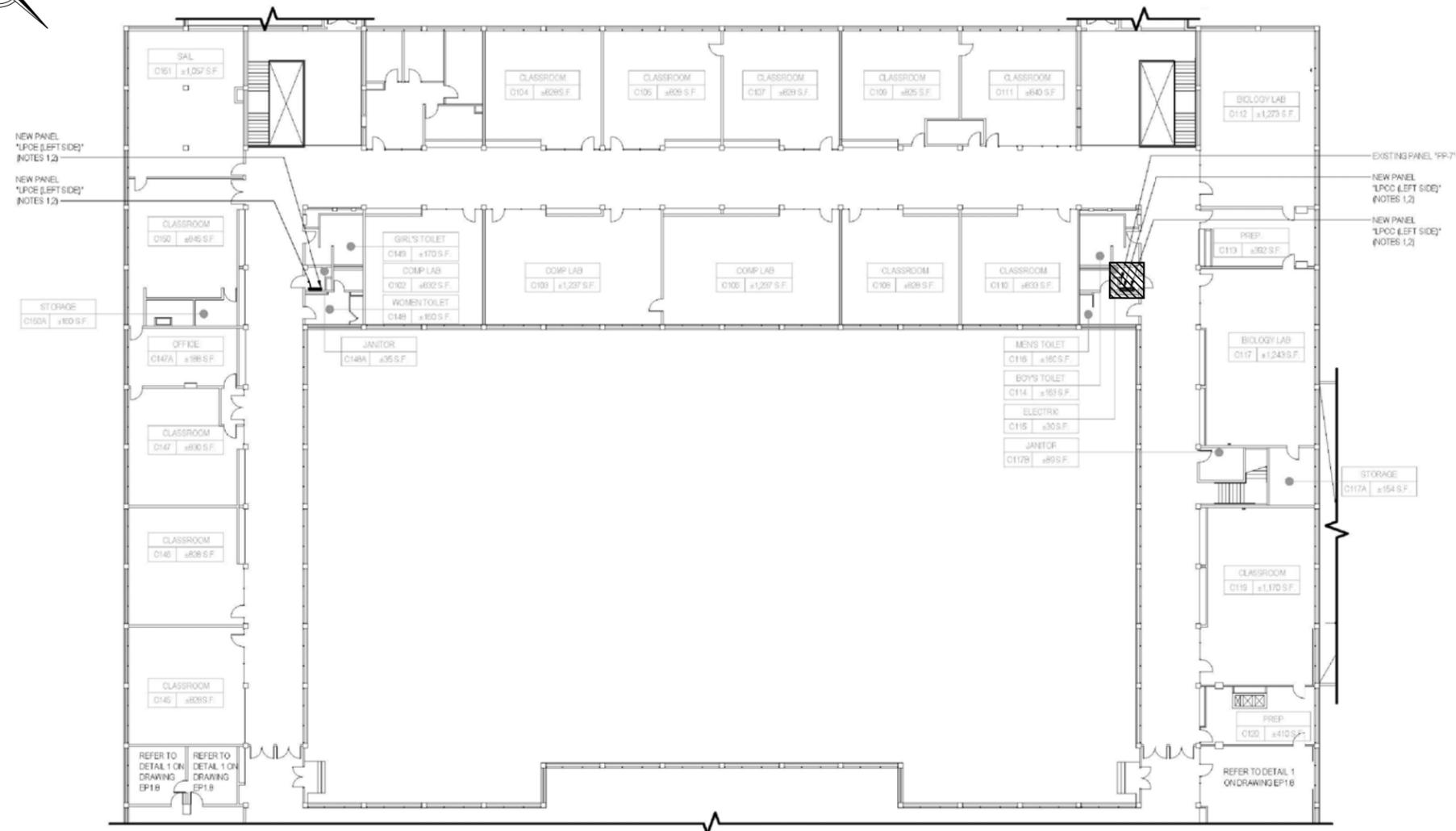
**ASBESTOS CONTAINING MATERIALS
BUILDING "C" WEST
FIRST FLOOR PLAN**

DRAWN BY: J. GARCIA SCALE: NOT TO SCALE
INSP./INV.: M. LUCCIONI DATE: 09/25/2019
CERTIFICATE NO.: 03-11021 DRAWING NUMBER

CHECKED BY C. NAPOLITANO

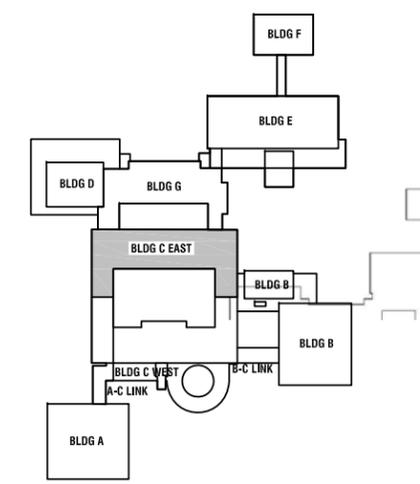
ACM009

DRAWING NUMBER
9 OF 12



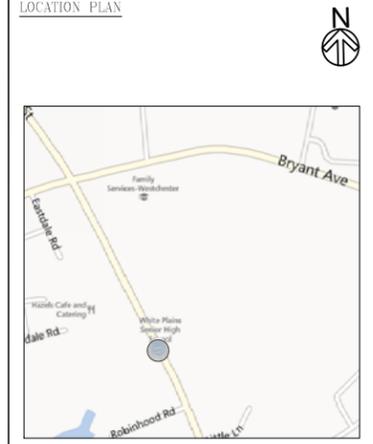
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ACM010 SCALE: NOT TO SCALE

LEGEND
 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS



KEY PLAN
SCALE: NOT TO SCALE

LOCATION PLAN



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REVISIONS:

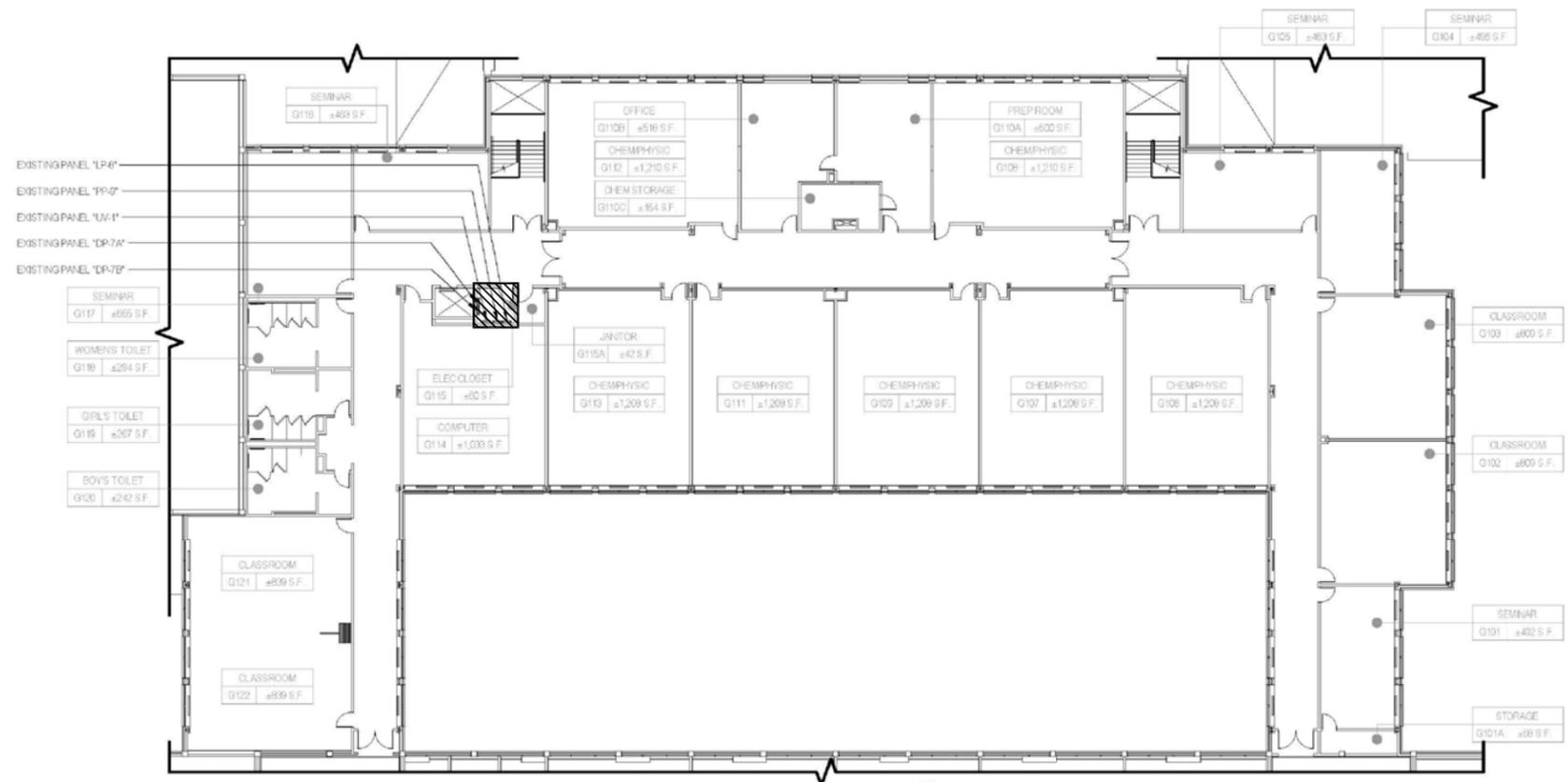
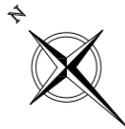
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WHITE PLAINS CITY SCHOOL DISTRICT
 INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:
**ASBESTOS CONTAINING MATERIALS
 BUILDING "C" EAST
 FIRST FLOOR PLAN**

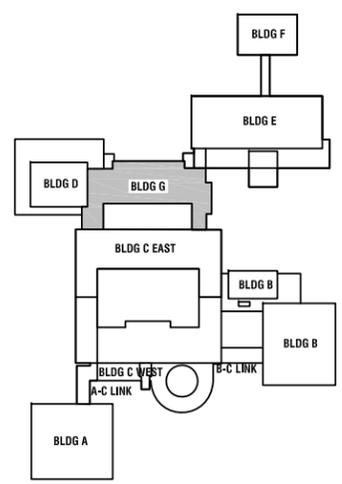
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CHECKED BY: C. NAPOLITANO
ACM010
 DRAWING NUMBER
 10 OF 12



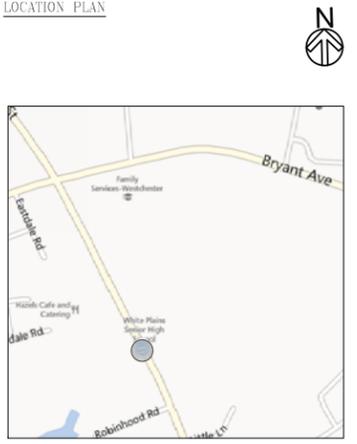
LEGEND
 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS

1 BUILDING "G" - FIRST FLOOR PLAN
 ACM011 SCALE: NOT TO SCALE



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



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 565 TAXTER ROAD, SUITE 510
 ELMSFORD, NY 10523
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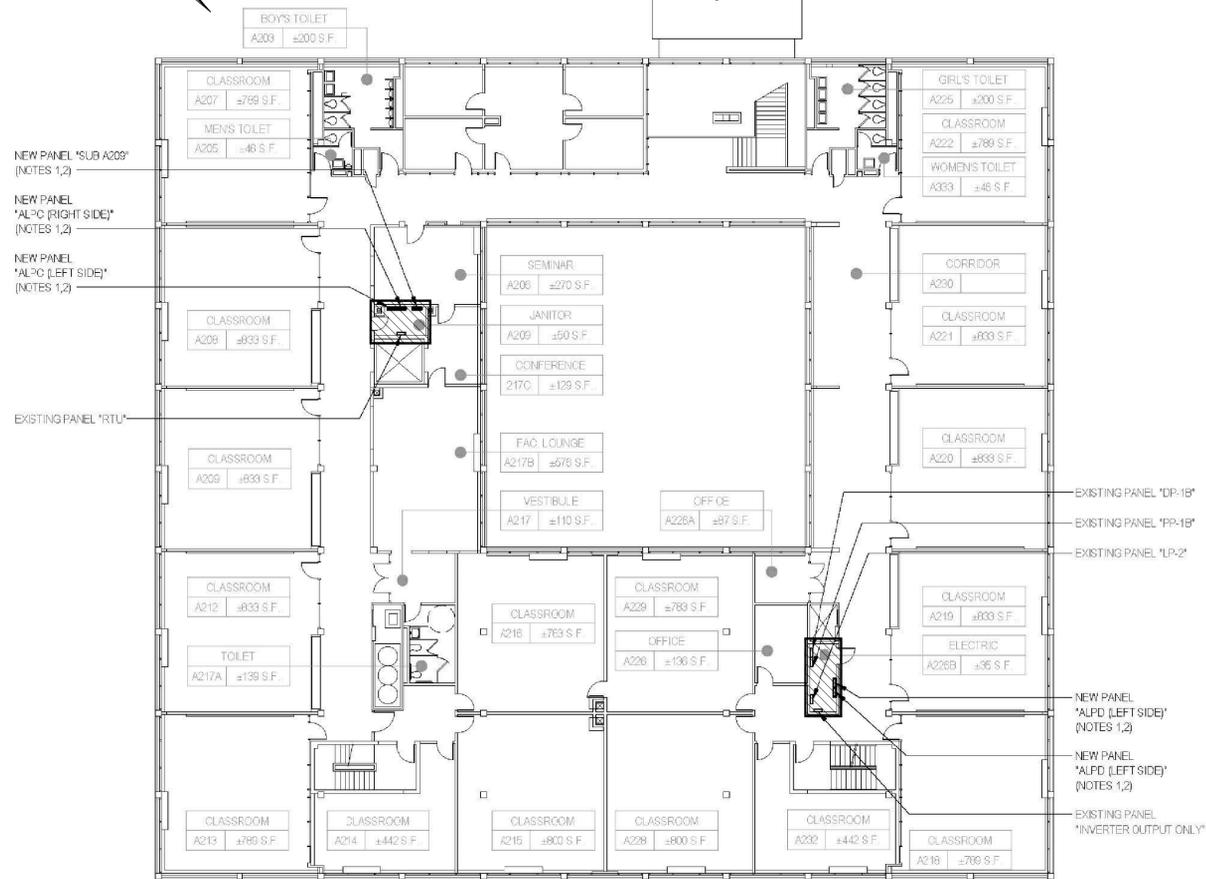
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WHITE PLAINS CITY SCHOOL DISTRICT
 INTERIOR UPGRADES AND SITE WORK
 AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:
**ASBESTOS CONTAINING MATERIALS
 BUILDING "G"
 FIRST FLOOR PLAN**

DRAWN BY: J. GARCIA SCALE: NOT TO SCALE
 INSP./INV.: M. LUCCIONI DATE: 09/25/2019
 CERTIFICATE NO: 03-11021 DRAWING NUMBER

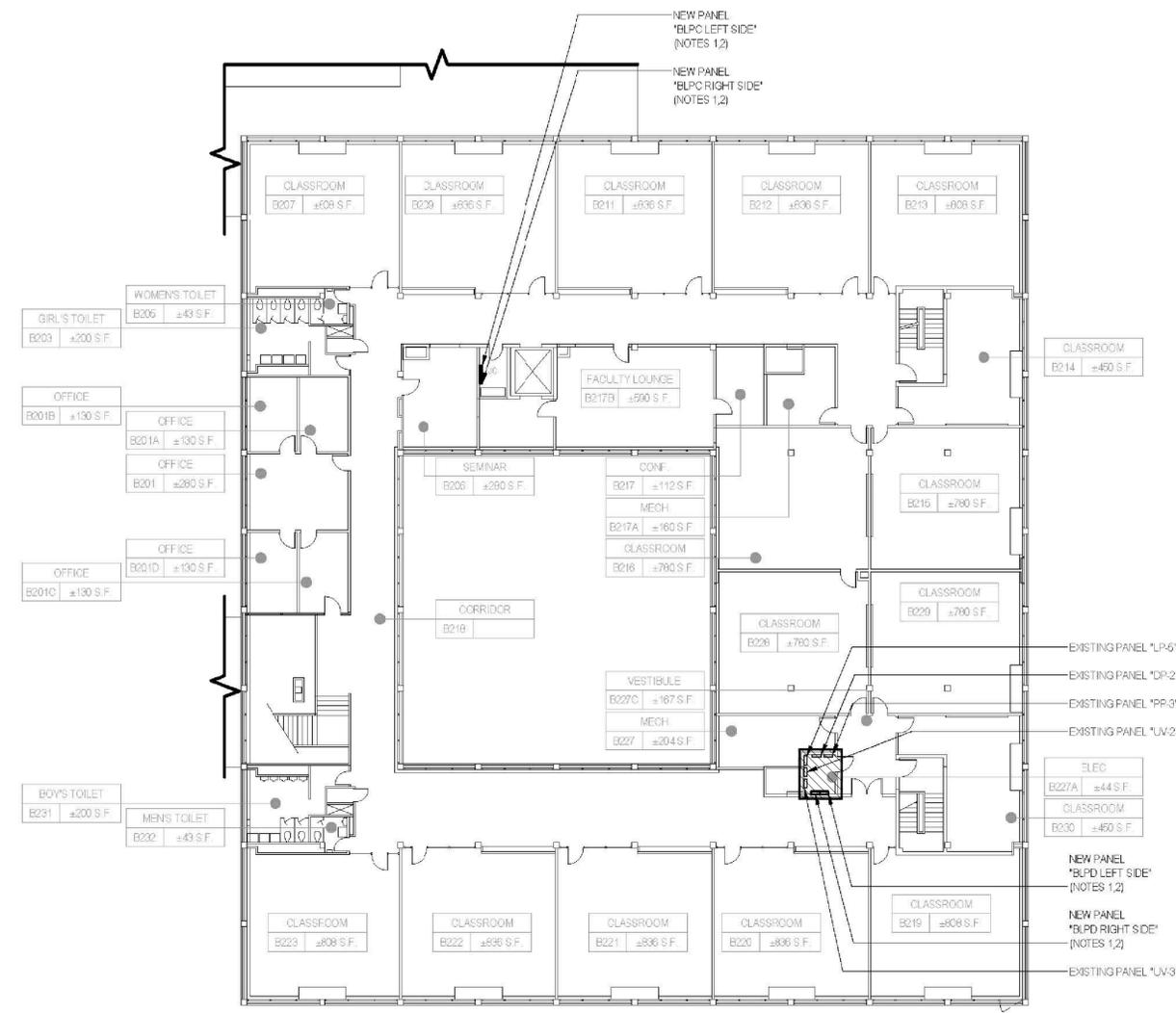
CHECKED BY: C. NAPOLITANO
ACM011
 DRAWING NUMBER
 11 OF 12



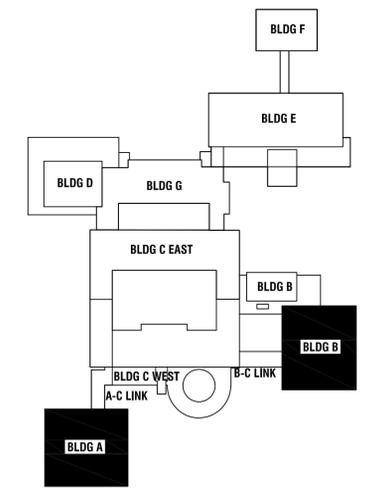
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 ACM012 SCALE: NOT TO SCALE

LEGEND

 LOCATION OF ASSUMED ASBESTOS CONTAINING BRAIDED ELECTRICAL WIRING ASSOCIATED WITH EXISTING PANELS & CONDUITS



2 BUILDING "B" - SECOND FLOOR PLAN
 ACM012 SCALE: NOT TO SCALE



KEY PLAN
 SCALE: NOT TO SCALE



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WHITE PLAINS CITY SCHOOL DISTRICT

INTERIOR UPGRADES AND SITE WORK AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:
ASBESTOS CONTAINING MATERIALS BUILDING "A" AND "B" SECOND FLOOR PLAN

DRAWN BY: J. GARCIA SCALE: NOT TO SCALE
 INSP./INV.: M. LUCCIONI DATE: 09/25/2019
 CERTIFICATE NO: 03-11021 DRAWING NUMBER:
 CHECKED BY: C. NAPOLITANO

ACM012
 DRAWING NUMBER:
 12 OF 12



Final Report of Environmental Inspection Services

**APPENDIX E:
PCB BULK SAMPLE FIELD DATA SHEETS WITH CHAIN OF
CUSTODY & LABORATORY RESULTS**



EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 303-2500 Fax: (856) 858-4571 Email: EnvChemistry2@emsl.com

Attn:

**Marvin Luccioni
Louis Berger U.S., Inc
96 Morton Street
8th floor
New York, NY 10014**

9/26/2019

Phone: (212) 612-7900
Fax:

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 9/19/2019. The results are tabulated on the attached data pages for the following client designated project:

2043479.17

The reference number for these samples is EMSL Order #011911832. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Approved By:

Phillip Worby, Environmental Chemistry
Laboratory Director



The test results contained within this report meet the requirements of NELAP and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, CA ELAP 1877

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 858-4571

<http://www.EMSL.com>EnvChemistry2@emsl.com

EMSL Order: 011911832

CustomerID: LBAP78

CustomerPO:

ProjectID:

Attn: **Marvin Luccioni**
Louis Berger U.S., Inc
96 Morton Street
8th floor
New York, NY 10014

Phone: (212) 612-7900
 Fax:
 Received: 09/19/19 9:20 AM

Project: 2043479.17

Analytical Results

Client Sample Description 01,02,03 **Collected:** 9/17/2019 **Lab ID:** 011911832-0001
 Store Front Caulking, Gray; Main Entrance

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
GC-SVOA						
3540C/8082A	Aroclor-1016	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1221	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1232	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1242	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1248	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1254	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1260	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1262	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC
3540C/8082A	Aroclor-1268	ND D		0.96 mg/Kg	9/20/2019 AB	09/23/19 0:00 AC

Definitions:

MDL - method detection limit

J - Result was below the reporting limit, but at or above the MDL

ND - indicates that the analyte was not detected at the reporting limit

RL - Reporting Limit (Analytical)

D - Dilution



Final Report of Environmental Inspection Services

**APPENDIX F:
COMPANY LICENSE, PERSONNEL CERTIFICATIONS
AND LABORATORY ACCREDITATIONS**

New York State – Department of Labor

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

ASBESTOS HANDLING LICENSE

Louis Berger, U.S., Inc.
8th Floor
96 Morton Street

New York, NY 10014

FILE NUMBER: 19-132876
LICENSE NUMBER: 132876
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 02/14/2019
EXPIRATION DATE: 02/29/2020

Duly Authorized Representative – Craig Napolitano:

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

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



Eileen M. Franko, Director
For the Commissioner of Labor

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



MARVIN LUCCIONI
CLASS(EXPIRES)
C ATEC(02/20) D INSP(02/20)
H PM (02/20) I PD (02/20)

CERT# 03-11021
DMV# 992503906

MUST BE CARRIED ON ASBESTOS PROJECTS

CLASSIFICATION: 03-11021



JOSUE GARCIA

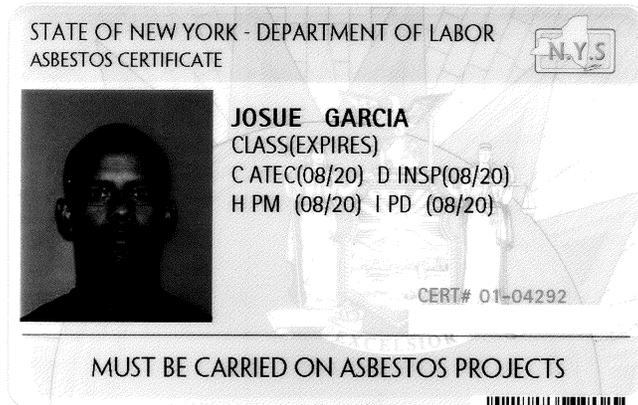
C/O LOUIS BERGER 96 MORTON ST 8TH FL
NEW YORK NY 10014

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 or call (518) 457-2735

YOUR NEW CARD





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NEW YORK
STATE OF
OPPORTUNITY. | **Department
of Labor**

LUIS A NEVAREZ

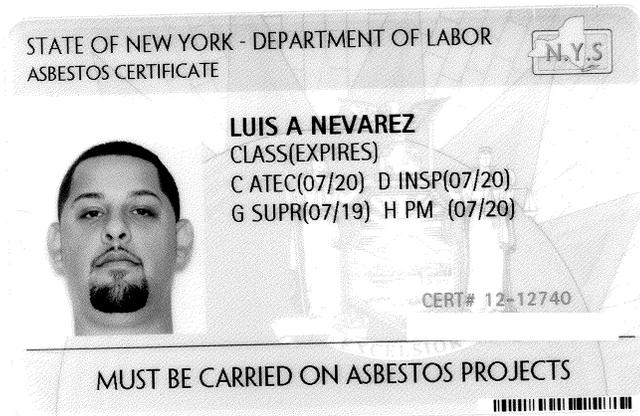
C/O LOUIS BERGER, 96 MORTON ST APT 8FL
NEW YORK NY 10014

Enclosed is your new card.

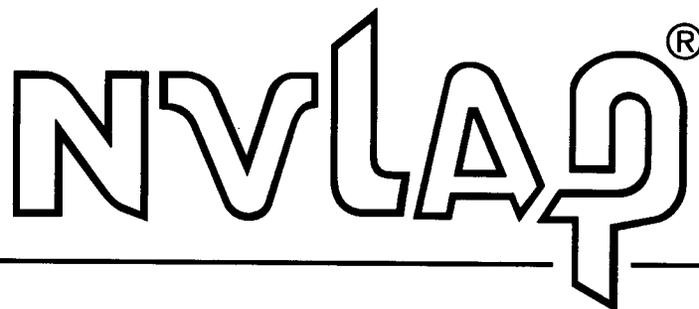
NYS Department of Labor

The Department of Labor is happy to provide this improved card. We welcome your comments:
nysdol@labor.ny.gov or call (518) 457-2735

YOUR NEW CARD



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101048-10

EMSL Analytical, Inc.
Carle Place, 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).*

2019-07-01 through 2020-06-30

Effective Dates

A handwritten signature in black ink, appearing to read 'Dana S. Laman'. The signature is written over a horizontal line.

For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EMSL Analytical, Inc.
528 Mineola Ave.
Carle Place, NY 11514
Daniel Clarke
Phone: 516-997-7251
Email: dclarke@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS

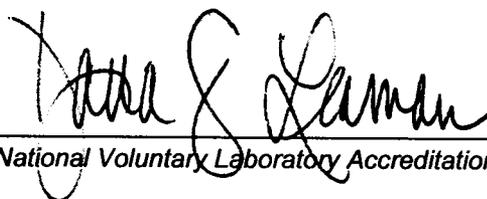
NVLAP LAB CODE 101048-10

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
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

<u>Code</u>	<u>Description</u>
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



Final Report of Environmental Inspection Services

APPENDIX G: FILE SEARCH



Louis Berger

565 Taxter Road, 5th Floor, Elmsford, NY 10523
Tel 914 798 3710 Fax 914 592 1734 www.louisberger.com

June 15, 2016

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10605

**Subject: Final Report of Environmental Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger (LB) has completed a material inspection at White Plains High School located at 550 North Street, White Plains, NY 10605. 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) associated with proposed Building Upgrades at the White Plains High School and Field Storage Building scope of work, based on the Final Bid Set design drawings dated July 2015.

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,

LOUIS BERGER

Craig Napolitano, CHMM
Director, Industrial Hygiene & Hazmat Services

FINAL REPORT OF ENVIRONMENTAL SERVICES

Performed at:

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**



Prepared by:



Louis Berger

**565 Taxter Road, 5th Floor
Elmsford, New York 10523**

Tel. (914) 798-3710

Fax (914) 592-1734

Project No. 3001329

Submission Date: June 15, 2016



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- 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: Lead Field Data Sheets with XRF Results
- Appendix D: PCB Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results
- Appendix E: Company License, Personnel Certifications & Laboratory Accreditations
- Appendix F: Bulk Sample Location Drawings
- Appendix G: Asbestos Containing Material Locations Drawings
- Appendix H: Site Photo Log
- Appendix I: Previous Survey Report



1.0 EXECUTIVE SUMMARY

Louis Berger (LB) has performed a renovation specific material Inspection for the presence or absence of Asbestos-Containing Materials (ACM), Lead Based Paints (LBP) and Polychlorinated Biphenyls (PCBs) at White Plains High School located at 550 North Street, White Plains, NY 10605. The intent of this Inspection was to screen for Asbestos-Containing Materials (ACM), Lead Based Paints (LBP) and Polychlorinated Biphenyls (PCBs) that may be impacted during the proposed renovations.

Michael Gelfand and Dmitri Kirnossenko of LB performed this Inspection on May 31 and June 8, 2016. Mr. Kirnossenko has New York State Department of Labor (NYSDOL) Asbestos Inspector License (Cert# 07-01720) and New York State EPA as a Lead Inspector (Cert# NY-I-16279-3). Mr. Gelfand has NYSDOL Asbestos Inspector License (Cert# 98-17113). 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 renovation project:

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- None

Analytical results of the bulk samples collected indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Exterior Brick Mortar (gray)
- Tectum Ceiling Panels (gray)
- Asphalt (black)
- Cinderblock Mortar (gray)
- Ceiling Scratch Coat (gray)
- Canvas Wrap around Fiberglass Pipe & Fitting Insulation (gray)
- Wall Plaster (white coat)
- Wall Plaster (brown coat)

The following materials were **assumed to contain asbestos**:

- None

B. LEAD-BASED PAINTS

XRF shots collected indicate that the following testing combinations **are coated with lead-based paint** (greater than or equal to 1 mg/cm²);

- **Beige, WALL, Cinderblock - Bldg. C, Corridor by Auxiliary Gym**



XRF shots collected indicate that the following testing combinations are not coated with lead-based paint (less than 1 mg/cm²);

- Beige, DUCT, Metal
- Beige, WALL, Concrete
- Gray, WALL, Concrete
- Beige, WALL, Cinderblock
- Gray, WALL, Cinderblock
- Beige, CEILING, Concrete
- Varnish, DOOR, Wood
- Beige, COLUMN, Concrete
- Varnish, DOOR TRANSOM, Wood
- White, WALL, Cinderblock
- Beige, ELECTRICAL CONDUIT, Metal
- Red, WALL, Cinderblock
- Black, WALL, Cinderblock
- Red, CHAIR RAIL, Wood
- Beige, WALL, Sheetrock
- Blue, WALL, Plaster
- Gray, FLOOR, Concrete
- Green, OIL TANK, Metal
- Orange, WALL, Cinderblock
- Beige, DUCT, Metal
- Beige, WALL, Concrete
- Gray, WALL, Concrete
- Beige, WALL, Cinderblock
- Gray, WALL, Cinderblock
- Beige, CEILING, Concrete
- Varnish, DOOR, Wood
- Beige, COLUMN, Concrete
- Varnish, DOOR TRANSOM, Wood
- White, WALL, Cinderblock
- Beige, ELECTRICAL CONDUIT, Metal
- Red, WALL, Cinderblock
- Black, WALL, Cinderblock
- Red, CHAIR RAIL, Wood
- Beige, WALL, Sheetrock

C. PCB-CONTAINING MATERIAL

- Not applicable for this report



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 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 25th, 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 25th 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 25th, 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 101048-9)
- New York State Environmental Laboratory Approval Program (Lab No. 11506)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102581)

LEAD-BASED PAINT

Any work which disturbs painted surfaces containing lead shall be performed in accordance with the Occupational Safety and Health Administrations (OSHA) 29 CFR 1926.62 (Lead in Construction Standard) and EPA's 40 CFR 745 regulations. Personal air monitoring should be conducted when disturbing lead based paints and lead containing materials as per 29CFR1926.62 (OSHA).

In addition, all waste generated as part of the project, regardless of the lead content in the paint, shall be tested in accordance with the EPA Resource Conservation and Recovery Act (RCRA) to determine the classification of the waste. Under RCRA, any waste material that, when tested by Toxicity Characteristics Leaching Procedure (TCLP), results in a leachate lead concentration of five (5) parts per million or greater must be disposed of at an EPA licensed hazardous waste facility.

The finer renovation debris and paint chips that result from renovation of components with measurable quantities of lead can be tested by TCLP, or can be assumed hazardous waste and disposed of accordingly. If the scope of work is increased to include removal of actionable building components, we recommend that a TCLP test be performed on one typical component (e.g. metal, sheetrock, plaster, masonry, etc.) to determine proper disposal for all similar components.



The incurred cost for disposal of lead based paint materials/debris associated with the The Staten Island Institute of Arts and Sciences at Snug Harbor Cultural Center building A renovations will depend upon the TCLP results for materials/debris collected and the total weight of items which return TCLP results above the EPA allowed 5 parts per million (see section 2.0 for analysis methodology). It should be noted that LBP on 2nd floor plaster walls will be removed and disposed of as ACM.

The cost of the TCLP depends on the laboratory and location; but typically, a full TCLP analysis may cost from \$150 to \$350. Any waste material, that when tested by TCLP, results in a leachate lead concentration of five (5) parts per million or greater must be disposed of at an EPA licensed hazardous waste facility. Cost of disposal may range from \$5,000 to \$7,000 per ton of waste.

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), 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 suspect ACM, LBP and PCB materials that may be impacted by the proposed renovations. Locations surveyed include:

- School Building Exterior
- School Building Interior
- Auxiliary Gym Roof
- Field House Exterior
- Field House Interior

A. ASBESTOS-CONTAINING MATERIAL

Materials examined during the Berger Inspection included:

- Cinderblock Mortar
- Sheetrock Walls
- Joint Compound assoc. with Sheetrock Walls
- 1'x1' Pinhole Ceiling Tiles
- Mastic assoc. with Pinhole Ceiling Tiles
- 2'x4' Fissured Ceiling Tiles
- 1'x1' Gouged Ceiling Tiles
- 2'x4' Small Pinhole Ceiling Tiles
- 1'x1' Fissured Ceiling Tiles
- 2'x2' Small Pinhole Ceiling Tiles
- Fitting Insulation assoc. with Fiberglass Pipe Insulation
- Wrap around Fiberglass Pipe Insulation
- Tectum Ceiling Panels (gray)
- Wall Plaster (white coat)
- Wall Plaster (brown coat)
- Tar on Concrete Deck
- Paper to Foam Insulation
- Fabric Barrier
- Exterior Brick Mortar (gray)
- Asphalt (black)
- Cinderblock Mortar (gray)
- Ceiling Scratch Coat (gray)
- Canvas Wrap around Fiberglass Pipe & Fitting Insulation (gray)

Based upon visual inspection and bulk sample analysis asbestos has been confirmed to exist in the following materials:

- **None**



Asbestos was **not detected** in the following materials via PLM and/or TEM analysis:

- Exterior Brick Mortar (gray)
- Tectum Ceiling Panels (gray)
- Asphalt (black)
- Cinderblock Mortar (gray)
- Ceiling Scratch Coat (gray)
- Canvas Wrap around Fiberglass Pipe & Fitting Insulation (gray)
- Wall Plaster (white coat)
- Wall Plaster (brown coat)

The following materials were **assumed to contain asbestos**:

- **None**

B. LEAD-BASED PAINT ASSESSMENT

Surfaces examined during the Inspection included:

- Beige, DUCT, Metal
- Beige, WALL, Concrete
- Gray, WALL, Concrete
- Beige, WALL, Cinderblock
- Gray, WALL, Cinderblock
- Beige, CEILING, Concrete
- Varnish, DOOR, Wood
- Beige, COLUMN, Concrete
- Varnish, DOOR TRANSOM, Wood
- White, WALL, Cinderblock
- Beige, ELECTRICAL CONDUIT, Metal
- Red, WALL, Cinderblock
- Black, WALL, Cinderblock
- Red, CHAIR RAIL, Wood
- Beige, WALL, Sheetrock
- Blue, WALL, Plaster
- Gray, FLOOR, Concrete
- Green, OIL TANK, Metal
- Orange, WALL, Cinderblock

Based upon visual inspection and XRF testing, lead has been confirmed to exist in the following testing combinations:

- **Beige, Cinderblock, WALL**



Lead was **not detected** in the following testing combinations within the building via XRF testing:

- Beige, DUCT, Metal
- Beige, WALL, Concrete
- Gray, WALL, Concrete
- Beige, WALL, Cinderblock
- Gray, WALL, Cinderblock
- Beige, CEILING, Concrete
- Varnish, DOOR, Wood
- Beige, COLUMN, Concrete
- Varnish, DOOR TRANSOM, Wood
- White, WALL, Cinderblock
- Beige, ELECTRICAL CONDUIT, Metal
- Red, WALL, Cinderblock
- Black, WALL, Cinderblock
- Red, CHAIR RAIL, Wood
- Beige, WALL, Sheetrock
- Blue, WALL, Plaster
- Gray, FLOOR, Concrete
- Green, OIL TANK, Metal
- Orange, WALL, Cinderblock

C. PCB-CONTAINING MATERIAL

- Not applicable for this report



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 renovations. The following suspect materials were sampled and analyzed for asbestos content by Berger:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT	NOTES
1	Interior	Cinderblock Mortar	Non-ACM	2013 Berger report
2	Interior	Sheetrock Walls	Non-ACM	2013 Berger report
3	Interior	Joint Compound assoc. with Sheetrock Walls	Non-ACM	2013 Berger report
4	Interior	1'x1' Pinhole Ceiling Tiles	Non-ACM	2013 Berger report
5	Interior	Mastic assoc. with Pinhole Ceiling Tiles	Non-ACM	2013 Berger report
12	Interior	2'x4' Fissured Ceiling Tiles	Non-ACM	2013 Berger report
13	Interior	1'x1' Gouged Ceiling Tiles	Non-ACM	2013 Berger report
14	Interior	2'x4' Small Pinhole Ceiling Tiles	Non-ACM	2013 Berger report
15	Interior	1'x1' Fissured Ceiling Tiles	Non-ACM	2013 Berger report
16	Interior	2'x2' Small Pinhole Ceiling Tiles	Non-ACM	2013 Berger report
17	Interior	Fitting Insulation assoc. with Fiberglass Pipe Insulation	Non-ACM	2013 Berger report
18	Interior	Wrap around Fiberglass Pipe Insulation	Non-ACM	2013 Berger report
B	Auxiliary Gym	Tectum Ceiling Panels (gray)	Non-ACM	
8	Bldg. D, Auditorium	Cinderblock Mortar	Non-ACM	2013 Berger report
G	Bldg. D, Room 102A (Auditorium Stage Storage)	Wall Plaster (white coat)	Non-ACM	
H	Bldg. D, Room 102A (Auditorium Stage Storage)	Wall Plaster (brown coat)	Non-ACM	Confirmed via ELAP 198.8 Method
9	Gym Roofs	Tar on Concrete Deck	Non-ACM	2013 Berger report
10	Gym Roofs	Paper to Foam Insulation	Non-ACM	2013 Berger report
11	Gym Roofs	Fabric Barrier	Non-ACM	2013 Berger report
A	Building A, Exterior	Exterior Brick Mortar (gray)	Non-ACM	
C	Field House, Exterior	Asphalt (black)	Non-ACM	
D	Field House, Boiler/Mechanical Room	Cinderblock Mortar (gray)	Non-ACM	
E	Field House, Boiler/Mechanical Room	Ceiling Scratch Coat (gray)	Non-ACM	
F	Field House, Boiler/Mechanical Room	Canvas Wrap around Fiberglass Pipe & Fitting Insulation (gray)	Non-ACM	

Bold = Positive for ACM



B. LEAD-BASED PAINT

The lead inspection involved a thorough visual examination of all accessible areas impacted by the proposed renovation project. The following suspect surfaces were tested for lead content:

LOCATION	MATERIAL (BLDG. COMPONENT, SUBSTRATE)	COLOR	RESULT
Bldg. A, Corridor by Room A003, A004	DUCT, Metal	Beige	Non-LBP
Bldg. A, Corridor by Room A003, A004	WALL, Concrete	Beige	Non-LBP
Bldg. A, Corridor by Room A003, A004	WALL, Concrete	Gray	Non-LBP
Bldg. A, Corridor by Room A003, A004	WALL, Cinderblock	Beige	Non-LBP
Bldg. A, Corridor by Room A003, A004	WALL, Cinderblock	Gray	Non-LBP
Bldg. A, Corridor by Room A003, A004	CEILING, Concrete	Beige	Non-LBP
Bldg. A, Room A003	DOOR, Wood	Varnish	Non-LBP
Bldg. A, Room A003	DUCT, Metal	Beige	Non-LBP
Bldg. A, Room A003	WALL, Cinderblock	Beige	Non-LBP
Bldg. A, Room A003	COLUMN, Concrete	Beige	Non-LBP
Bldg. A, Room A003	CEILING, Concrete	Beige	Non-LBP
Bldg. A, Room A003	DOOR TRANSOM, Wood	Varnish	Non-LBP
Bldg. A, Room A004	DOOR, Wood	Varnish	Non-LBP
Bldg. A, Room A004	DUCT, Metal	Beige	Non-LBP
Bldg. A, Room A004	WALL, Cinderblock	Beige	Non-LBP
Bldg. A, Room A004	COLUMN, Concrete	Beige	Non-LBP
Bldg. A, Room A004	CEILING, Concrete	Beige	Non-LBP
Bldg. A, Room A004	DOOR TRANSOM, Wood	Varnish	Non-LBP
Bldg. A, Room A008	DOOR, Wood	Varnish	Non-LBP
Bldg. A, Room A008	DUCT, Metal	Beige	Non-LBP
Bldg. A, Room A008	WALL, Cinderblock	White	Non-LBP
Bldg. A, Room A008	WALL, Cinderblock	Beige	Non-LBP
Bldg. A, Room A008	COLUMN, Concrete	Beige	Non-LBP
Bldg. A, Room A008	CEILING, Concrete	Beige	Non-LBP
Bldg. D, Ground Floor Corridor	WALL, Cinderblock	Beige	Non-LBP
Bldg. D, Ground Floor Corridor	COLUMN, Concrete	Beige	Non-LBP
Bldg. D, Room 102A (Stage Storage)	WALL, Plaster	Blue	Non-LBP
Bldg. E, Auxiliary Gym	ELECTRICAL CONDUIT, Metal	Beige	Non-LBP
Bldg. E, Auxiliary Gym	WALL, Cinderblock	Red	Non-LBP
Bldg. E, Auxiliary Gym	WALL, Cinderblock	Beige	Non-LBP
Bldg. E, Auxiliary Gym	WALL, Cinderblock	Black	Non-LBP
Bldg. E, Auxiliary Gym	CHAIR RAIL, Wood	Red	Non-LBP
Bldg. E, Corridor by Auxiliary Gym	WALL, Cinderblock	Beige	LBP
Bldg. E, Corridor by Auxiliary Gym	WALL, Cinderblock	Beige	Non-LBP
Bldg. E, Room E216	WALL, Cinderblock	Beige	Non-LBP
Bldg. E, Room E216	WALL, Sheetrock	Beige	Non-LBP
Bldg. G, Ground Floor Corridor	WALL, Cinderblock	Beige	Non-LBP
Field House, Boiler Room	WALL, Cinderblock	Beige	Non-LBP
Field House, Boiler Room	FLOOR, Concrete	Gray	Non-LBP
Field House, Boiler Room	OIL TANK, Metal	Green	Non-LBP



LOCATION	MATERIAL (BLDG. COMPONENT, SUBSTRATE)	COLOR	RESULT
Field House, Exterior	WALL, Cinderblock	Beige	Non-LBP
Field House, Locker Room	WALL, Cinderblock	Beige	Non-LBP
Field House, Locker Room	WALL, Cinderblock	Black	Non-LBP
Field House, Locker Room	WALL, Cinderblock	Orange	Non-LBP

Bold = Positive for LEAD

C. PCB-CONTAINING MATERIAL

- Not applicable for this report

4.2 SAMPLE ANALYSIS TABLE

ACM laboratory analysis results are included in Appendix A.

5.0 AREAS NOT ACCESSIBLE

During the Inspection the following areas were not accessible:

- None

6.0 CONCLUSIONS AND RECOMMENDATIONS

ACM materials have been identified in this inspection that may be impacted as part of the renovations at the White Plains High School. These materials, reported in Section 3.0 of this report, may require complete removal prior to the start of the renovation project. No PCBs were identified during this Inspection.

The ACM, LBP & PCB Inspection was conducted at the request of White Plains City School District for the proposed renovations, as provided by email from H2M Senior Project Architect. 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 REPORT CERTIFICATIONS

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of LB’s efforts for the environmental inspection work for the White Plains High School.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of LB’s site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which LB is unaware and has not had the opportunity to evaluate.



The conclusions presented in this report are professional opinions solely upon LB'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:

A handwritten signature in black ink, appearing to read 'Dmitri Kirnossenko'.

Dmitri Kirnossenko
NYS DOL Inspector

Reviewed by:

A handwritten signature in blue ink, appearing to read 'Craig Napolitano'.

Craig Napolitano, CHMM
Director, Industrial
Hygiene & Hazmat Services



**APPENDIX A:
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM**

SUMMARY OF LABORATORY RESULTS

White Plains HS, 550 North St, White Plains, NY

Homogeneous Area	Sample No.	Description/Location	Material	PLM Results %	PLM-NOB Results %	TEM-NOB Results %	Vermiculite Results %	Vermiculite Method 198.8 Results %
Samples collected on 5/31/2016								
A	1	Bldg. A, Outside Server Rm A004	Exterior Brick Mortar (gray)	NAD	---	---	---	---
	2	Bldg. A, at Location of New Generator		NAD	---	---	---	---
B	3	Bldg. E, Auxiliary Gym	Tectum Ceiling Panels (gray)	---	NAD	NAD	---	---
	4	Bldg. E, Auxiliary Gym		---	NAD	NAD	---	---
C	5	Field House, North Side	Asphalt (black)	---	NAD	NAD	---	---
	6	Field House, South Side		---	NAD	NAD	---	---
D	7	Field House, Mechanical Room	Cinderblock Mortar (gray)	NAD	---	---	---	---
	8	Field House, North Side		NAD	---	---	---	---
E	9	Field House, Mechanical Room	Ceiling Scratch Coat (gray)	NAD	---	---	NVD	NVD
	10	Field House, Mechanical Room		NAD	---	---	NVD	NVD
	11	Field House, Mechanical Room		NAD	---	---	NVD	NVD
F	12	Field House, Mechanical Room	Canvas Wrap around Fiberglass Pipe & Fitting Insulation (gray)	NAD	---	---	---	---
	13	Field House, Mechanical Room		NAD	---	---	---	---
	14	Field House, Mechanical Room		NAD	---	---	---	---
G	15	Bldg. D, Stage Storage	Wall Plaster (brown coat)	NAD	---	---	Vermiculite Detected	NAD
	16	Bldg. D, Stage Storage		NAD	---	---	Vermiculite Detected	NAD
	17	Bldg. D, Stage Storage		NAD	---	---	Vermiculite Detected	NAD
H	18	Bldg. D, Stage Storage	Wall Plaster (white coat)	NAD	---	---	NVD	NVD
	19	Bldg. D, Stage Storage		NAD	---	---	NVD	NVD
	20	Bldg. D, Stage Storage		NAD	---	---	NVD	NVD

NA/PS = sample not analyzed/stop at first positive method
 NAD = no asbestos detected
 --- = sample not analyzed by methodology
 x % = % of asbestos detected



**APPENDIX B:
ASBESTOS BULK SAMPLE FIELD DATA SHEETS
WITH CHAIN OF CUSTODY
AND 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: 031615256
Customer ID: LBAP78
Customer PO: 3001329.00
Project ID:

Attention: Louis Berger & Associates, PC
48 Wall St.
New York, NY 10005
Phone: (212) 612-7900
Fax:
Received Date: 6/ 1/2016 12:07 PM
Analysis Date: 6/ 4/2016
Collected Date: 5/31/2016
Project: 3001329.00/ WPHS/ 550 NORTH ST/ WHITE PLAINS NY/ THROUGHOUT

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 1 031615256-0001		Description	BLDG A - OUTSIDE SERVER RM A004 - EXTERIOR BRICK MORTAR (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Brown		22.00% Ca Carbonate 15.00% Non-fibrous (other) 63.00% Quartz	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 2 031615256-0002		Description	BLDG A - AT LOCATION OF NEW GENERATOR - EXTERIOR BRICK MORTAR (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Gray		45.00% Non-fibrous (other) 55.00% Quartz	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 3 031615256-0003		Description	BLDG E - AUXILARY GYM - TEXTURE CEILING PANELS (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Brown	78.00% Cellulose	15.00% Ca Carbonate 7.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 4 031615256-0004		Description	BLDG E - AUXILARY GYM - TEXTURE CEILING PANELS (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Brown/Gray	60.00% Cellulose	25.00% Gypsum 15.00% Non-fibrous (other)	None Detected
No Vermiculite 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: 031615256
Customer ID: LBAP78
Customer PO: 3001329.00
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 5 031615256-0005		Description FIELD HOUSE, NORTH SIDE - ASPHALT (BLACK)	Fibrous Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB No Vermiculite detected.	6/ 4/2016	Black			Inconclusive: None Detected
TEM NYS 198.4 NOB	6/ 4/2016	Black			None Detected
Sample ID 6 031615256-0006		Description FIELD HOUSE, SOUTH SIDE - ASPHALT (BLACK)	Fibrous Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB No Vermiculite detected.	6/ 4/2016	Black			Inconclusive: None Detected
TEM NYS 198.4 NOB	6/ 4/2016	Black			None Detected
Sample ID 7 031615256-0007		Description FIELD HOUSE, MECHANICAL ROOM - CINDERBLOCK MORTAR (GREY)	Fibrous Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	6/ 5/2016	Gray		28.00% Ca Carbonate 28.00% Non-fibrous (other) 44.00% 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 8 031615256-0008		Description FIELD HOUSE, NORTH SIDE - CINDERBLOCK MORTAR (GREY)	Fibrous Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	6/ 5/2016	Brown		40.00% Gypsum 15.00% 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
Sample ID 9 031615256-0009		Description FIELD HOUSE, MECHANICAL ROOM - CEILING SCRATCH COAT (GREY)	Fibrous Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	6/ 5/2016	Gray		33.00% Ca Carbonate 27.00% Non-fibrous (other) 40.00% 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: 031615256
Customer ID: LBAP78
Customer PO: 3001329.00
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 10 <i>031615256-0010</i>		Description	FIELD HOUSE, MECHANICAL ROOM - CEILING SCRATCH COAT (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Gray		26.00% Ca Carbonate 27.00% Non-fibrous (other) 47.00% Quartz	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 11 <i>031615256-0011</i>		Description	FIELD HOUSE, MECHANICAL ROOM - CEILING SCRATCH COAT (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Gray		25.00% Ca Carbonate 15.00% Non-fibrous (other) 60.00% Quartz	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 12 <i>031615256-0012</i>		Description	FIELD HOUSE, MECHANICAL ROOM - CANVAS WRAP AROUND FIBERGLASS PIPE + FITTING (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Gray/Yellow	28.00% Min. Wool	30.00% Gypsum 42.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 13 <i>031615256-0013</i>		Description	FIELD HOUSE, MECHANICAL ROOM - CANVAS WRAP AROUND FIBERGLASS PIPE + FITTING (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Brown	40.00% Cellulose	60.00% Non-fibrous (other)	None Detected
No Vermiculite 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 <i>031615256-0014</i>		Description	FIELD HOUSE, MECHANICAL ROOM - CANVAS WRAP AROUND FIBERGLASS PIPE + FITTING (GREY)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Brown	90.00% Cellulose	10.00% Non-fibrous (other)	None Detected
No Vermiculite 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: 06/05/2016 11:54:14



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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: 031615256
Customer ID: LBAP78
Customer PO: 3001329.00
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 15 <i>031615256-0015</i>		Description	BLDG D, STAGE STORAGE RM - WALL PLASTER (BROWN COAT)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Brown	100.00% Non-fibrous (other)		None Detected
Surfacing Material containing vermiculite. NYS requires ELAP method 198.8.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 16 <i>031615256-0016</i>		Description	BLDG D, STAGE STORAGE RM - WALL PLASTER (BROWN COAT)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	Brown	100.00% Non-fibrous (other)		
Surfacing Material containing vermiculite. NYS requires ELAP method 198.8.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 17 <i>031615256-0017</i>		Description	BLDG D, STAGE STORAGE RM - WALL PLASTER (BROWN COAT)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016		100.00% Non-fibrous (other)		
Surfacing Material containing vermiculite. NYS requires ELAP method 198.8.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 18 <i>031615256-0018</i>		Description	BLDG D, STAGE STORAGE RM - WALL PLASTER (WHITE COAT)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	White	44.00% Ca Carbonate 56.00% Non-fibrous (other)		None Detected
No Vermiculite 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 <i>031615256-0019</i>		Description	BLDG D, STAGE STORAGE RM - WALL PLASTER (WHITE COAT)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	White	50.00% Ca Carbonate 50.00% Non-fibrous (other)		None Detected
No Vermiculite 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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<http://www.EMSL.com> / manhattanlab@emsl.com

EMSL Order: 031615256
Customer ID: LBAP78
Customer PO: 3001329.00
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 20 031615256-0020		Description	BLDG D, STAGE STORAGE RM - WALL PLASTER (WHITE COAT)		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	6/ 5/2016	White		50.00% Ca Carbonate 50.00% Non-fibrous (other)	None Detected
No Vermiculite Detected. Inseparable paint / coating layer included in analysis					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

Initial Report From: 06/05/2016 11:54:14



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<http://www.EMSL.com> / manhattanlab@emsl.com

EMSL Order: 031615256
Customer ID: LBAP78
Customer PO: 3001329.00
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Scope: Leica #13 Ser. 9640113941VM0035 Scope: Leica #12 Ser. 9640113941VM0040
Scope: JEOL / JEM-100CX II #03-03

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: 6/1/2016
Analysis Completed Date: 6/5/2016

Sample Receipt Time: 12:07 PM
Analysis Completed Time: 12:03 AM

Analyst(s):

Deen Liang PLM NYS 198.1 Friable (9)

Yolanda Chow PLM NYS 198.1 Friable (9)

Tiquasha Thompson PLM NYS 198.6 NOB (2)

Gerald Iannuzzi TEM NYS 198.4 NOB (2)

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 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

Initial Report From: 06/05/2016 11:54:14



EMSL Analytical, Inc.
 200 Route 130 North, Cinnaminson, NJ 08077
 Phone/Fax: (800)220-3675 / (856)786-5974
<http://www.EMSL.com> cinnaslab@EMSL.com

EMSL Order #: **041615237**
 Customer ID: **LBAP78**
 Customer PO: **Not Available**

Attn: **Craig Napolitano**
Louis Berger & Associates, PC
 48 Wall St.
 New York, NY 10005

Phone: **212-612-7900**
 Fax: **Not Available**

Project: **3001329.00 / WSPD / White Plains High School / 550 North St, White Plains, NY / Throughout /**

Date Collected: **05/31/2016**
 Date Received: **06/08/2016**
 Date Analyzed: **06/14/2016**

Report Date: 06/14/2016

Revision: R0

Asbestos Analysis by NYS ELAP Method 198.8
PLM Analysis for Asbestos in Sprayed-On Fireproofing Containing Vermiculite (SOF-V) Bulk Samples

<i>Lab Number</i>	<i>Client Sample Identification</i>	<i>Appearance</i>	<i>Percentage Matrix Material</i>	<i>Percentage non-Asbestos Fibers</i>	<i>Chrysotile Percentage</i>	<i>Amphibole Percentage</i>	<i>Total Percentage</i>
041615237-0001	15	Tan Non-Fibrous Homogeneous	100	0.0	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
041615237-0002	16	Tan Non-Fibrous Homogeneous	100	0.0	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
041615237-0003	17	Tan Non-Fibrous Homogeneous	100	0.0	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Report Date
06/14/2016

Report Revision
R0

Revision Comments
Initial Report

Benjamin Ellis, Laboratory Manager
 or other approved signatory
 NYS ELAP 10872

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

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<http://www.EMSL.com> cinnaslab@EMSL.com

EMSL Order #: 041615237

Customer ID: LBAP78

Customer PO: Not Available

Asbestos Analysis of NYS ELAP Method 198.8
PLM analysis for Asbestos in Sprayed-On Fireproofing Containing Vermiculite (SOF-V) Bulk Samples
Bench Sheet

EMSL Sample ID: 041615237-0001

Crucible ID: X12-1

	Analyst	Date
Gravimetric Prep	CM	6/11/2016
Chrysotile Analysis	SRC	6/13/2016
Centrifugation Date	CM	6/14/2016
Amphibole Analysis	AC	6/14/2016

Stereoscopic			
Color	Tan	Stereoscopic % Asbestos	ND
Texture	Non-Fibrous		
Homogeneity	Homogeneous	Vermiculite Detected	Yes

Initial Weights*	
Weight of Crucible	25.5726
Weight of Crucible and Sub Sample	28.9614
Weight of Sub-Sample	3.3888

Non-Asbestos Fiber	Optical Property	Visual %	Calc %
			0
			0

Aashing		Chrysotile Identification Optical Properties						Temperature (C°)	20.4
Weight of Crucible & Ash	28.3534	↓ RI	BRI	Morphology	Sign	Pleochroism	Birefringence	Fiber Color	Extinction
Weight of Ash	2.7808								
Weight Loss During Aashing	0.6080								
Weight Percent Organic and Water	17.9415								

Acid Treatment/ Flotation		Amphibole Identification Optical Properties						Temperature (C°)	22.3
Weight of Dish for Floats	46.2484	↓ RI	BRI	Morphology	Sign	Pleochroism	Birefringence	Fiber Color	Extinction
Weight of Dish & Floats	46.2484								
Weight of Floats	0.0000								
Weight Percent Floats	0.0000								
Weight of Dish & Filter for Residue	8.4121								
Weight of Dish & Filter & Residue	8.6471								
Weight of Residue	0.2350								
Weight Loss During Acid/Flotation Treatment	2.5458								
Weight Percent Acid-Soluble/Float Materials	75.1239								
Weight Percent Residue	6.9346								

PLM Examination of Residue (Chrysotile)	Analyzed	PTCT	Chrysotile	Non-Empty	PTCT:	Chrysotile	Non-Empty	Trace Detected?
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<input type="checkbox"/> None
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50	<input type="checkbox"/> Check box if yes
Percent Chrysotile by PTCT	0.00	Slide 3:	0	50	Slide 7:	0	50	
(if greater than 1% no further analysis needed)	0.0000	Slide 4:	0	50	Slide 8:	0	50	

Heavy Liquid Centrifugation	
Weight of Dish & Filter & Balance of Residue (Post Chrysotile Analysis)	8.6276
Weight of Balance of Residue	0.2155
Weight of Dish & Filter for Centrifugate	8.4496
Weight of Dish & Filter & Centrifugate	8.4532
Weight of Centrifugate	0.0036
Weight Percent Centrifugate	0.1158

PLM Examination of Centrifugate (Amphibole)	Analyzed	PTCT	Amphibole	Non-Empty	PTCT:	Amphibole	Non-Empty	Trace Detected?
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<input type="checkbox"/> None
Number of Amphibole Points	0	Slide 2:	0	50	Slide 6:	0	50	<input type="checkbox"/> Check box if yes
Percent Amphibole by PTCT	0.00	Slide 3:	0	50	Slide 7:	0	50	
Percent Amphibole in Sample	0.0000	Slide 4:	0	50	Slide 8:	0	50	

Percent of Total Asbestos in Sample	0.0000
-------------------------------------	--------

* All Weights in grams

**EMSL Analytical, Inc.**

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<http://www.EMSL.com> cinnaslab@EMSL.com

EMSL Order #: 041615237

Customer ID: LBAP78

Customer PO: Not Available

Asbestos Analysis of NYS ELAP Method 198.8
PLM analysis for Asbestos in Sprayed-On Fireproofing Containing Vermiculite (SOF-V) Bulk Samples
Bench Sheet

EMSL Sample ID: 041615237-0002

Crucible ID: X12-2

	Analyst	Date
Gravimetric Prep	CM	6/11/2016
Chrysotile Analysis	SRC	6/13/2016
Centrifugation Date	CM	6/14/2016
Amphibole Analysis	AC	6/14/2016

Stereoscopic			
Color	Tan	Stereoscopic % Asbestos	ND
Texture	Non-Fibrous		
Homogeneity	Homogeneous	Vermiculite Detected	Yes

Initial Weights*	
Weight of Crucible	26.8375
Weight of Crucible and Sub Sample	29.8786
Weight of Sub-Sample	3.0411

Non-Asbestos Fiber	Optical Property	Visual %	Calc %
			0
			0

Aashing		Chrysotile Identification Optical Properties						Temperature (C°)	20.4
Weight of Crucible & Ash	29.3450	↓R	BR	Morphology	Sign	Florescence	Birefringence	Fiber Color	Extinction
Weight of Ash	2.5075								
Weight Loss During Aashing	0.5336								
Weight Percent Organic and Water	17.5463								

Acid Treatment/ Flotation		Amphibole Identification Optical Properties						Temperature (C°)	22.1
Weight of Dish for Floats	44.2598	↓R	BR	Morphology	Sign	Florescence	Birefringence	Fiber Color	Extinction
Weight of Dish & Floats	44.2598								
Weight of Floats	0.0000								
Weight Percent Floats	0.0000								
Weight of Dish & Filter for Residue	8.4919								
Weight of Dish & Filter & Residue	8.7464								
Weight of Residue	0.2545								
Weight Loss During Acid/Flotation Treatment	2.2530								
Weight Percent Acid-Soluble/Float Materials	74.0850								
Weight Percent Residue	8.3687								

PLM Examination of Residue (Chrysotile)	Analyzed	PTCT	Chrysotile	Non-Empty	PTCT	Chrysotile	Non-Empty	Trace Detected?
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<input type="checkbox"/> None
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50	<input type="checkbox"/> Check box if yes
Percent Chrysotile by PTCT	0.00	Slide 3:	0	50	Slide 7:	0	50	
(if greater than 1% no further analysis needed)	0.0000	Slide 4:	0	50	Slide 8:	0	50	

Heavy Liquid Centrifugation	
Weight of Dish & Filter & Balance of Residue (Post Chrysotile Analysis)	8.7273
Weight of Balance of Residue	0.2354
Weight of Dish & Filter for Centrifugate	8.3733
Weight of Dish & Filter & Centrifugate	8.3784
Weight of Centrifugate	0.0051
Weight Percent Centrifugate	0.1813

PLM Examination of Centrifugate (Amphibole)	Analyzed	PTCT	Amphibole	Non-Empty	PTCT	Amphibole	Non-Empty	Trace Detected?
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<input type="checkbox"/> None
Number of Amphibole Points	0	Slide 2:	0	50	Slide 6:	0	50	<input type="checkbox"/> Check box if yes
Percent Amphibole by PTCT	0.00	Slide 3:	0	50	Slide 7:	0	50	
Percent Amphibole in Sample	0.0000	Slide 4:	0	50	Slide 8:	0	50	

Percent of Total Asbestos in Sample	0.0000
-------------------------------------	--------

* All Weights in grams

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800)220-3675 / (856)786-5974

<http://www.EMSL.com> cinnaslab@EMSL.com

EMSL Order #: 041615237

Customer ID: LBAP78

Customer PO: Not Available

Asbestos Analysis of NYS ELAP Method 198.8
PLM analysis for Asbestos in Sprayed-On Fireproofing Containing Vermiculite (SOF-V) Bulk Samples
Bench Sheet

EMSL Sample ID: 041615237-0003

Crucible ID: X12-3

	Analyst	Date
Gravimetric Prep	CM	6/11/2016
Chrysotile Analysis	SRC	6/13/2016
Centrifugation Date	CM	6/14/2016
Amphibole Analysis	AC	6/14/2016

Stereoscopic			
Color	Tan	Stereoscopic % Asbestos	ND
Texture	Non-Fibrous		
Homogeneity	Homogeneous	Vermiculite Detected	Yes

Initial Weights*	
Weight of Crucible	28.0569
Weight of Crucible and Sub Sample	31.4732
Weight of Sub-Sample	3.4163

Non-Asbestos Fiber	Optical Property	Visual %	Calc %
			0
			0

Aashing		Chrysotile Identification Optical Properties						Temperature (C°)	20.4
Weight of Crucible & Ash	30.7953	↓R	BR	Morphology	Sign	Pleochroism	Birefringence	Fiber Color	Extinction
Weight of Ash	2.7384								
Weight Loss During Aashing	0.6779								
Weight Percent Organic and Water	19.8431								

Acid Treatment/ Flotation		Amphibole Identification Optical Properties						Temperature (C°)	22.2
Weight of Dish for Floats	40.6006	↓R	BR	Morphology	Sign	Pleochroism	Birefringence	Fiber Color	Extinction
Weight of Dish & Floats	40.6006								
Weight of Floats	0.0000								
Weight Percent Floats	0.0000								
Weight of Dish & Filter for Residue	8.4779								
Weight of Dish & Filter & Residue	8.6754								
Weight of Residue	0.1975								
Weight Loss During Acid/Flotation Treatment	2.5409								
Weight Percent Acid-Soluble/Float Materials	74.3758								
Weight Percent Residue	5.7811								

PLM Examination of Residue (Chrysotile)	Analyzed	PTCT	Chrysotile	Non-Empty	PTCT:	Chrysotile	Non-Empty	Trace Detected?
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<input type="checkbox"/> None
Number of Chrysotile Points	0	Slide 2:	0	50	Slide 6:	0	50	<input type="checkbox"/> Check box if yes
Percent Chrysotile by PTCT	0.00	Slide 3:	0	50	Slide 7:	0	50	
(if greater than 1% no further analysis needed)	0.0000	Slide 4:	0	50	Slide 8:	0	50	

Heavy Liquid Centrifugation	
Weight of Dish & Filter & Balance of Residue (Post Chrysotile Analysis)	8.6563
Weight of Balance of Residue	0.1784
Weight of Dish & Filter for Centrifugate	8.3674
Weight of Dish & Filter & Centrifugate	8.3716
Weight of Centrifugate	0.0042
Weight Percent Centrifugate	0.1361

PLM Examination of Centrifugate (Amphibole)	Analyzed	PTCT	Amphibole	Non-Empty	PTCT:	Amphibole	Non-Empty	Trace Detected?
Number of Occupied Points	400	Slide 1:	0	50	Slide 5:	0	50	<input type="checkbox"/> None
Number of Amphibole Points	0	Slide 2:	0	50	Slide 6:	0	50	<input type="checkbox"/> Check box if yes
Percent Amphibole by PTCT	0.00	Slide 3:	0	50	Slide 7:	0	50	
Percent Amphibole in Sample	0.0000	Slide 4:	0	50	Slide 8:	0	50	

Percent of Total Asbestos in Sample	0.0000
-------------------------------------	--------

* All Weights in grams



EMSL Analytical, Inc.
 200 Route 130 North, Cinnaminson, NJ 08077
 Phone/Fax: (800)220-3675 / (856)786-5974
<http://www.EMSL.com> cinnaslab@EMSL.com

EMSL Order #: **041615237**
 Customer ID: **LBAP78**
 Customer PO: **Not Available**

Attn: **Craig Napolitano**
Louis Berger & Associates, PC
48 Wall St.
New York, NY 10005

Phone: **212-612-7900**
 Fax: **Not Available**

Project: **3001329.00 / WSPD / White Plains High School / 550 North St,**

Date Collected: **05/31/2016**
 Date Received: **06/08/2016**
 Date Analyzed: **06/14/2016**

Report Date
06/14/2016

Report Revision
 R0

Revision Comments
 Initial Report

Benjamin Ellis, Laboratory Manager
or other approved signatory
 NYS ELAP 10872

About us



EMSL Analytical, Inc. offers a full line of analytical solutions for over 30 years across North America. For more information about our nationally accredited locations, vast line of testing services, and our food safety solutions please visit www.EMSL.com or call (800) 220-3675.

United States and Canada Locations



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LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 2 OF 2

LB PROJ 3001329.00

CLIENT: WPSD

031615256

LOCATION(S) SURVEYED: Throughout

PROPOSED PROJECT: Building upgrades

PROJECT SITE: WPHS, 550 North St, White Plains, NY

Project Manager: C. Neapolitano

DATE(S) OF INSPECTION: 5/31/16

Inspector(s) M.G., D.K.

LOUIS BERGER
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
 ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
F	12	Cement wrap around Fiberglass pipe & fittings used.	Field House, Mechanical Rm.		
	13	(gray)			
	14				
G	15	Wall plaster (brown coat)	Bldg D, Stage Storage Rm		Stop at 1st positive
	16				
	17				
H	18	Wall plaster (white coat)			
	19				
	20				

EMSL MANHATTAN LAB
 RECEIVED
 16 JUN -16 PM 12:07

CHAIN OF CUSTODY			
Relinquished by: <u>[Signature]</u>	Relinquished by: (print)	AMFM	(Sign)
Received by: <u>[Signature]</u>	Received by: (print)	AMFM	(Sign)

02 6/4/16
12:15 AM
XC 6/5/16
10:28 AM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

LOUIS BERGER

PAGE 1 OF 2

LB PROJ 3001329.00
 CLIENT: WPSD

LOCATION(S) SURVEYED: Throughout
 PROPOSED PROJECT: Building Upgrades
 DATE(S) OF INSPECTION: 5/31/16
 Inspector(s) M.S., D.K.

PROJECT SITE: WPHS, 550 North St., White Plains, NY
 Project Manager: C. Napolitano

LOUIS BERGER
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
 ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____
 TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
A	1	Exterior Brick Marker (gray)	Block A - outside Server Room Pool		
	2		" " - at location of new Generator		
B	3	Textured Ceiling Panels (gray)	Block E - Auxiliary Gym		
	4		↓		
C	5	Asphalt (black)	Field House, North side		
	6		↓ South side		
D	7	Curbside Marker (gray)	Field House, Mechanical Room		
	8		↓ North side		
E	9	Ceiling scratch Coat (gray)	Field House, Mechanical Room		
	10		↓		
	11		↓		

EMSL MANHATTAN LAB
 RECEIVED
 16 JUN - 1 PM 12:07

CHAIN OF CUSTODY

Relinquished by (Sign)	AMPM	Relinquished by (print)	AMPM	Received by (Sign)	AMPM	Received by (print)	AMPM
<i>[Signature]</i>	6 11 16						
<i>[Signature]</i>	6 11 16						

XC 6/5/16
 10:28 AM
 6/4/16
 12:15 PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

ASBESTOS SURVEY DATA SHEET/CHAIN OF CUSTODY

LOUIS BERGER
 LB PROJ 3001329.00
 CLIENT: WPSD
 PROJECT SITE: WPHS, 550 NORTH ST., WHITE PLAINS, NY
 Project Manager: C. Napolitano

LOCATION(S) SURVEYED: Throughland
 PROPOSED PROJECT: Building Upgrades
 DATE(S) OF INSPECTION: 5/31/16
 Inspector(s): N.G., D.K.

RESULTS TO: _____
 TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
A	1	Exterior Brick Marker (gray)	Bldg A - outside Server Rm 4004		
B	2	_____	" " - at location of new Generator		
C	3	Tedium Ceiling Panels (gray)	Bldg E - Auxiliary Gym		
D	4	_____	Field House, North side		
E	5	Asphalt (black)	Field House, North side		
F	6	_____	Field House, South side		
G	7	Cinderblock Marker (gray)	Field House, Mechanical Room		
H	8	_____	Field House, North side		
I	9	Ceiling scratch Coat (gray)	Field House, Mechanical Room		
J	10	_____	Field House, Mechanical Room		
K	11	_____	Field House, Mechanical Room		

EMSL MANHATTAN LAB RECEIVED
 16 JUN - 1 PM 12:07

CHAIN OF CUSTODY			
Relinquished by: <u>[Signature]</u>	AMPM: <u>6:11'16</u>	Relinquished by: _____	AMPM: _____
Received by: <u>[Signature]</u>	AMPM: <u>6:11'16</u>	Received by: _____	AMPM: _____

[Handwritten Signature]
 6/14/16

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

LOUIS BERGER ASBESTOS SURVEY DATA SHEET/CHAIN OF CUSTODY

LOCATION(S) SURVEYED: Throughout
 PROPOSED PROJECT: Building upgrades
 DATE(S) OF INSPECTION: 5/31/16
 Inspector(s): M.G., D.V.

LB PROJ: 3901329.00
 CLIENT: WPSD
 PROJECT SITE: WPHS, 550 North St, White Plains, NY
 Project Manager: C. Neapolitano

TURNAROUND TIME:

4 HR. 24 HRS. 48 HRS. 72 HRS.

RESULTS TO:

LOUIS BERGER
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
 ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (L/F/SF)	FIELD NOTES
F	12	Cement wrap around Fiberglass pipe & fittings used.	Field House, Mechanical Rm.		
	13	(gray)			
	14				
G	15	Wall Plaster (brown sand)	Bibij D, Stage Storage Rm.		Stop at 1st positive
	16				
	17				
H	18	Wall Plaster (white sand)			
	19				
	20				

EMSL MANHATTAN LAB
 RECEIVED
 16 JUN - 11 PM 12:07

CHAIN OF CUSTODY

Requested by:	AMPM	Received by:	AMPM	Requested by:	AMPM	Received by:	AMPM
(Sign)		(Sign)		(Sign)		(Sign)	
(print)		(print)		(print)		(print)	

Signature
 6/16/16

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.



**APPENDIX C:
LEAD XRF SHOT RESULTS**

XRF Testing Data Report

Project Number	3001329
Testing Location	White Plains High School
Inspector	D.Kimrossenko, M. Gelfand
Date	May 31, 2016
XRF Model	RMD LPA-1
XRF Serial Number	3675

Test Number	Room	Component Name	Color	Condition	Substrate	Location (Wall/Side)	[Pb] (mg/cm ²)	Result
1		OFFICE CALIBRATION @ 1.0	5/31/2016 10:30				1.1	POS
2		OFFICE CALIBRATION @ 1.0					1.1	POS
3		OFFICE CALIBRATION @ 1.0					1.1	POS
4		OFFICE CALIBRATION @ 0.0					-0.1	NEG
5		OFFICE CALIBRATION @ 0.0					0	NEG
6		OFFICE CALIBRATION @ 0.0					0	NEG
7	Bldg. A, Room A004	WALL	Beige	Fair	Cinderblock	Wall A	-0.3	NEG
8	Bldg. A, Room A004	WALL	Beige	Fair	Cinderblock	Wall B	-0.3	NEG
9	Bldg. A, Room A004	WALL	Beige	Fair	Cinderblock	Wall C	-0.3	NEG
10	Bldg. A, Room A004	COLUMN	Beige	Fair	Concrete	Wall C	-0.3	NEG
11	Bldg. A, Room A004	WALL	Beige	Fair	Cinderblock	Wall D	-0.4	NEG
12	Bldg. A, Room A004	CEILING	Beige	Fair	Concrete	Ceiling	-0.5	NEG
13	Bldg. A, Room A004	DUCT	Beige	Fair	Metal	Ceiling	-0.1	NEG
14	Bldg. A, Room A003	WALL	Beige	Fair	Cinderblock	Wall A	-0.5	NEG
15	Bldg. A, Room A003	WALL	Beige	Fair	Cinderblock	Wall B	-0.4	NEG
16	Bldg. A, Room A003	WALL	Beige	Fair	Cinderblock	Wall C	-0.3	NEG
17	Bldg. A, Room A003	COLUMN	Beige	Fair	Concrete	Wall C	-0.5	NEG
18	Bldg. A, Room A003	WALL	Beige	Fair	Cinderblock	Wall D	-0.5	NEG
19	Bldg. A, Room A003	CEILING	Beige	Fair	Concrete	Ceiling	-0.5	NEG
20	Bldg. A, Room A003	DOOR	Varnish	Fair	Wood	Wall A	-0.3	NEG
21	Bldg. A, Room A003	DOOR TRANSOM	Varnish	Fair	Wood	Wall A	-0.3	NEG

Test Number	Room	Component Name	Color	Condition	Substrate	Location (Wall/Side)	[Pb] (mg/cm ²)	Result
22	Bldg. A, Room A003	DUCT	Beige	Fair	Metal	Ceiling	0	NEG
23	Bldg. A, Room A004	DOOR	Varnish	Fair	Wood	Wall A	-0.2	NEG
24	Bldg. A, Room A004	DOOR TRANSOM	Varnish	Fair	Wood	Wall A	-0.3	NEG
25	Bldg. A, Corridor by Room A003, A003	WALL	Beige	Fair	Cinderblock	Wall B	-0.2	NEG
26	Bldg. A, Corridor by Room A003, A003	WALL	Gray	Fair	Cinderblock	Wall D	-0.5	NEG
27	Bldg. A, Corridor by Room A003, A003	WALL	Beige	Fair	Concrete	Wall B	-0.2	NEG
28	Bldg. A, Corridor by Room A003, A003	WALL	Gray	Fair	Concrete	Wall D	-0.1	NEG
29	Bldg. A, Corridor by Room A003, A003	DUCT	Beige	Fair	Metal	Ceiling	-0.2	NEG
30	Bldg. A, Corridor by Room A003, A003	CEILING	Beige	Fair	Concrete	Ceiling	-0.3	NEG
31	Bldg. A, Room A008	WALL	Beige	Fair	Cinderblock	Wall A	-0.3	NEG
32	Bldg. A, Room A008	WALL	Beige	Fair	Cinderblock	Wall B	-0.2	NEG
33	Bldg. A, Room A008	WALL	Beige	Fair	Cinderblock	Wall C	-0.2	NEG
34	Bldg. A, Room A008	COLUMN	Beige	Fair	Concrete	Wall C	-0.5	NEG
35	Bldg. A, Room A008	WALL	Beige	Fair	Cinderblock	Wall D	-0.2	NEG
36	Bldg. A, Room A008	DUCT	Beige	Fair	Metal	Wall D	-0.2	NEG
37	Bldg. A, Room A008	DUCT	Beige	Fair	Metal	Ceiling	-0.1	NEG
38	Bldg. A, Room A008	CEILING	Beige	Fair	Concrete	Ceiling	-0.3	NEG
39	Bldg. A, Room A008	WALL	White	Fair	Cinderblock	Wall A	-0.5	NEG
40	Bldg. A, Room A008	WALL	White	Fair	Cinderblock	Wall B	-0.2	NEG
41	Bldg. A, Room A008	DOOR	Varnish	Fair	Wood	Wall A	-0.3	NEG
42	Bldg. E, Auxiliary Gym	WALL	Beige	Fair	Cinderblock	Wall A	-0.3	NEG
43	Bldg. E, Auxiliary Gym	WALL	Red	Fair	Cinderblock	Wall A	-0.3	NEG
44	Bldg. E, Auxiliary Gym	WALL	Black	Fair	Cinderblock	Wall A	-0.6	NEG
45	Bldg. E, Auxiliary Gym	WALL	Beige	Fair	Cinderblock	Wall B	-0.3	NEG
46	Bldg. E, Auxiliary Gym	WALL	Red	Fair	Cinderblock	Wall B	-0.6	NEG
47	Bldg. E, Auxiliary Gym	WALL	Black	Fair	Cinderblock	Wall B	-0.5	NEG
48	Bldg. E, Auxiliary Gym	ELECTRICAL CONDUIT	Beige	Fair	Metal	Wall B	0	NEG

Test Number	Room	Component Name	Color	Condition	Substrate	Location (Wall/Side)	[Pb] (mg/cm ²)	Result
49	Bldg. E, Auxiliary Gym	WALL	Beige	Fair	Cinderblock	Wall C	-0.4	NEG
50	Bldg. E, Auxiliary Gym	WALL	Red	Fair	Cinderblock	Wall C	-0.3	NEG
51	Bldg. E, Auxiliary Gym	WALL	Black	Fair	Cinderblock	Wall C	-0.5	NEG
52	Bldg. E, Auxiliary Gym	WALL	Beige	Fair	Cinderblock	Wall D	-0.4	NEG
53	Bldg. E, Auxiliary Gym	CHAIR RAIL	Red	Fair	Wood	Wall C	-0.2	NEG
54	Bldg. E, Room E216	WALL	Beige	Fair	Cinderblock	Wall A	-0.3	NEG
55	Bldg. E, Room E216	WALL	Beige	Fair	Sheetrock	Wall A	-0.4	NEG
56	Bldg. E, Corridor by Auxiliary Gym	WALL	Beige	Fair	Cinderblock	Wall B	1	POS
57	Bldg. E, Corridor by Auxiliary Gym	WALL	Beige	Fair	Cinderblock	Wall D	-0.2	NEG
58	Bldg. G, Ground Floor Corridor	WALL	Beige	Fair	Cinderblock	Wall B	-0.3	NEG
59	Bldg. D, Ground Floor Corridor	WALL	Beige	Fair	Cinderblock	Wall B	-0.4	NEG
60	Bldg. D, Ground Floor Corridor	COLUMN	Beige	Fair	Concrete	Wall D	-0.5	NEG
61	Bldg. D, Room 102A (Stage Storage)	WALL	Blue	Fair	Plaster	Wall B	-0.2	NEG
62	Field House, Boiler Room	WALL	Beige	Fair	Cinderblock	Wall B	-0.2	NEG
63	Field House, Locker Room	WALL	Beige	Fair	Cinderblock	Wall B	-0.3	NEG
64	Field House, Locker Room	WALL	Orange	Fair	Cinderblock	Wall B	-0.2	NEG
65	Field House, Locker Room	WALL	Black	Fair	Cinderblock	Wall B	-0.3	NEG
66	Field House, Boiler Room	FLOOR	Gray	Fair	Concrete	Room Center	-0.3	NEG
67	Field House, Boiler Room	OIL TANK	Green	Fair	Metal	Wall A	-0.2	NEG
68	Field House, Exterior	WALL	Beige	Fair	Cinderblock	North	-0.2	NEG
69		CALIBRATE @ 1.0	5/31/2016 13:45				1	POS
70		CALIBRATE @ 1.0					1.1	POS
71		CALIBRATE @ 1.0					1.1	POS



LOUIS BERGER
& ASSOC., PC

XRF CALIBRATION CHECK FORM

PAGE 1 OF 1

PROJ. NO.:	3001329	DATE:	5/31/16
PROJECT NAME:	White Plains HS & Highlands MS	INSPECTOR NAME:	D. Kirmossenko; M. Gelfand
CLIENT:	White Plains School District	INSPECTOR SIGNATURE:	<i>[Signature]</i>
SITE:	WPHS	PROJ. MANAGER:	C. Napolitano

LOUIS BERGER & ASSOC., PC TELEPHONE #: (212) 612-7900 FAX #: (212) 425-1618 ADDRESS: 48 Wall Street 16th Floor New York, NY 10005	XRF MAKE/MODEL: RMD LPA-1 (Serial#3675)	NOTES:
---	---	--------

CALIBRATION CHECK - FIELD-START

1.0 mg/cm ² Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME: <u>10:30</u>	TEST # 1	2	3	
XRF READING	1.1	1.1	1.1	

CALIBRATION CHECK - FIELD-START

0.0 mg/cm ² Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST # 4	5	6	
XRF READING	-0.1	-0.0	-0.0	

CALIBRATION CHECK - FIELD-END/2-HR (circle one)

1.0 mg/cm ² Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME: <u>13:45</u>	TEST # 69	70	71	
XRF READING	1.0	1.1	1.1	

CALIBRATION CHECK - FIELD-END/2-HR (circle one)

_____ mg/cm ² Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
XRF READING				

CALIBRATION CHECK - FIELD-END/2-HR (circle one)

_____ mg/cm ² Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
XRF READING				

CALIBRATION CHECK - FIELD-END/2-HR (circle one)

_____ mg/cm ² Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
XRF READING				

CALIBRATION CHECK - FIELD-END/2-HR (circle one)

_____ mg/cm ² Calibration Block	FIRST READING	SECOND READING	THIRD READING	AVERAGE
CALIBRATION TIME:	TEST #			
XRF READING				



Louis Berger & Assoc., PC
48 Wall St., 16th Fl.
New York, NY 10005
Tel. 212-612-7900 Fax. 212-363-4341

XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PAGE 1 OF

PROJECT NO.: 3001329 PROJECT NAME: White Plains HS & Highlands MS XRF SERIAL #: RMD-3675
 CLIENT: White Plains HS & Highlands MS PROJECT LOCATION: WPHS
 INSPECTOR(S): D. Kimossenko; M. Gelfand INSPECTION DATE: 5/31/16
 PROJ. MANAGER: _____

SPACE CHARACTERISTICS: FLOOR #: _____ ROOM #: _____ ROOM NAME: _____ NOTES: _____

SAMPLE #	SUBSTRATE	COMPONENT DESCRIPTION										XRF READING [mg/cm ²]
		COLOR	CONDITION [I/F/P]	COMPONENT	WALL/SIDE DESIGN.	SIDE [L/C/R]	HEIGHT [L/M/U]	COMPONENT TREPLICANT	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:	Beige		W	A B C D RM CTR FL CL		BSMT		Rm A004		-0.3	
8	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	
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						-0.3	
10	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		CLM	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						-0.4	
12	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		CL	A B C D RM CTR FL CL						-0.5	
13	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		Duct	A B C D RM CTR FL CL						-0.1	
14	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		W	A B C D RM CTR FL CL			Rm A003			-0.5	
15	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	
16	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	
17	M PL S C CB PG CR B W V CT G FG OTHER:			CLM	A B C D RM CTR FL CL						-0.5	
18	M PL S C CB PG CR B W V CT G FG OTHER:			W	A B C D RM CTR FL CL						-0.5	
19	M PL S C CB PG CR B W V CT G FG OTHER:			CL	A B C D RM CTR FL CL						-0.5	
20	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		DR	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:	VARN		DR TRAN	A B C D RM CTR FL CL						-0.3	
22	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		Duct	A B C D RM CTR FL CL						0.0	
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			Rm A004			-0.2	
24	M PL S C CB PG CR B W V CT G FG OTHER:	VARN		DR TRAN	A B C D RM CTR FL CL			Rm A004			-0.3	
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			Corridor			-0.2	
26	M PL S C CB PG CR B W V CT G FG OTHER:	GRAY		W	A B C D RM CTR FL CL			Corridor			-0.5	

Side: Left/Center/Right; Height: Lower/Middle/Upper; Substrate: M: Metal; PL: Plaster; S: Sheetrock; C: Concrete; CB: Cinder Block; CR: Sinks, Water Closets, etc.; CT: Ceramic Tile; PG: Porcelain-glazed Block; B: Brick; W: Wood; V: Vinyl; FG: Fiberglass; G: Glass; Condition: I = Intact; F = Fair; P = Poor; Initial Result: P = Positive; N = Negative;



Louis Berger & Assoc., PC
48 Wall St., 16th Fl.
New York, NY 10005
Tel. 212-612-7900 Fax. 212-363-4341

XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PAGE 2 OF

PROJECT NO.: 3001329

PROJECT NAME: White Plains HS & Highlands MS

XRF SERIAL #:
RMD-3675

CLIENT: White Plains HS & Highlands MS

PROJECT LOCATION: WPHS

INSPECTOR(S): D. Kimossenko; M. Gelfand

PROJ. MANAGER:

INSPECTION DATE: 5/31/16

SPACE CHARACTERISTICS:

NOTES:

FLOOR #: ROOM #: ROOM NAME:

SAMPLE #	SUBSTRATE	COMPONENT DESCRIPTION										XRF READING (mg/cm ²)
		COLOR	CONDITION (I/F/P)	COMPONENT	WALL/SIDE DESIGN	SIDE (L/C/R)	HEIGHT (L/M/U)	COMPONENT TREPLICANT	QUANTITY (IF POSITIVE) (SF)	PHOTO	NOTES (DETERIORATION TO FRICTION/IMPACT AND/OR MOISTURE?)	
27	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL		Corridor					-0.2
28	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	gray		W	A B C D RM CTR FL CL		Corridor					-0.1
29	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		Duct	A B C D RM CTR FL CL		Corridor					-0.2
30	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		CL	A B C D RM CTR FL CL		Corridor					-0.3
31	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL		Rm A008					-0.3
32	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL							-0.2
33	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL							-0.2
34	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		CLM	A B C D RM CTR FL CL							-0.5
35	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL							-0.2
36	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		Duct	A B C D RM CTR FL CL							-0.2
37	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		Duct	A B C D RM CTR FL CL							-0.1
38	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	beige		CL	A B C D RM CTR FL CL							-0.3
39	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	white		W	A B C D RM CTR FL CL							-0.5
40	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	white		W	A B C D RM CTR FL CL							-0.2
41	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:	VARN		DR	A B C D RM CTR FL CL							-0.3
	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL							
	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL							
	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL							
	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL							
	M PL S <u>Ⓞ</u> CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL							

Side: Left/Center/Right; Height: Lower/Middle/Upper; Substrate: M: Metal; PL: Plaster; S: Sheetrock; C: Concrete; CB: Cinder Block; CR: Sinks, Water Closets, etc.; CT: Ceramic Tile; PG: Porcelain-glazed Block; B: Brick; W: Wood; V: Vinyl; FG: Fiberglass; G: Glass; Condition: I = Intact; F = Fair; P = Poor; Initial Result: P = Positive; N = Negative



Louis Berger & Assoc., PC
48 Wall St., 16th FL
New York, NY 10005
Tel. 212-612-7900 Fax. 212-363-4341

XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PAGE 3 OF

PROJECT NO.: 3001329 PROJECT NAME: White Plains HS & Highlands MS XRF SERIAL #: RMD-3675
 CLIENT: White Plains HS & Highlands MS PROJECT LOCATION: WPHS
 INSPECTOR(S): D. Kimossenko; M. Gelfand INSPECTION DATE: 5/31/16
 PROJ. MANAGER: _____

SPACE CHARACTERISTICS: _____ NOTES: _____
 FLOOR #: _____ ROOM #: _____ ROOM NAME: _____

SAMPLE #	SUBSTRATE	COMPONENT DESCRIPTION										XRF READING (mg/cm ²)
		COLOR	CONDITION (I/F/P)	COMPONENT	WALL/SIDE DESIGN.	SIDE (L/C/R)	HEIGHT (L/M/U)	COMPONENT TREPLICANT	QUANTITY (IF POSITIVE) [SF]	PHOTO	NOTES (DETERIORATION TO FRICTION/IMPACT AND/OR MOISTURE?)	
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						Aux. GYM bldg C	-0.3
43	M PL S C CB PG CR B W V CT G FG OTHER:	red		W	A B C D RM CTR FL CL							-0.3
44	M PL S C CB PG CR B W V CT G FG OTHER:	black		W	A B C D RM CTR FL CL							-0.6
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							-0.3
46	M PL S C CB PG CR B W V CT G FG OTHER:	red		W	A B C D RM CTR FL CL							-0.6
47	M PL S C CB PG CR B W V CT G FG OTHER:	black		W	A B C D RM CTR FL CL							-0.5
48	M PL S C CB PG CR B W V CT G FG OTHER:	beige		EC	A B C D RM CTR FL CL							0.0
49	M PL S C CB PG CR B W V CT G FG OTHER:	beige		W	A B C D RM CTR FL CL							-0.9
50	M PL S C CB PG CR B W V CT G FG OTHER:	red		W	A B C D RM CTR FL CL							-0.3
51	M PL S C CB PG CR B W V CT G FG OTHER:	black		W	A B C D RM CTR FL CL							-0.5
52	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
53	M PL S C CB PG CR B W V CT G FG OTHER:	red		MLD	A B C D RM CTR FL CL							-0.2
	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							
	M PL S C CB PG CR B W V CT G FG OTHER:				A B C D RM CTR FL CL							

Side: Left/Center/Right; Height: Lower/Middle/Upper; Substrate: M: Metal; PL: Plaster; S: Sheetrock; C: Concrete; CB: Cinder Block; CR: Sinks, Water Closets, etc.; CT: Ceramic Tile; PG: Porcelain-glazed Block; B: Brick; W: Wood; V: Vinyl; FG: Fiberglass; G: Glass; Condition: I = Intact; F = Fair; P = Poor; Initial Result: P = Positive; N = Negative;



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XRF LEAD-BASED PAINT TESTING DATA SHEET/CHAIN OF CUSTODY

PAGE ____ OF ____

PROJECT NO.: <u>3001329</u>	PROJECT NAME: <u>White Plains HS & Highlands MS</u>	XRF SERIAL #: <u>RMD-3675</u>
CLIENT: <u>White Plains HS & Highlands MS</u>	PROJECT LOCATION: <u>WPHS</u>	
INSPECTOR(S): <u>D. Kimossenko; M. Gelfand</u>	INSPECTION DATE: _____	
PROJ. MANAGER: _____		

SPACE CHARACTERISTICS: <u>Field Plance</u>	NOTES: _____
FLOOR #: _____ ROOM #: _____ ROOM NAME: _____	

SAMPLE #	SUBSTRATE	COLOR	CONDITION I/F/P	COMPONENT	COMPONENT DISCRPTION					NOTES (DETERIORATIO N TO FRICTION/IMPAC T AND/OR MOISTURE?)	XRF READI NG (mg/cm ²)
					WALL/SID E DESIGN.	SIDE [L/C/R]	HEIGHT [L/M/U]	COMPONEN TREPLICANT	QUANTITY (# POSITIVE [SF])		
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						-0.2
63	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
64	M PL S C CB PG CR B W V CT G FG OTHER:	Orange		W	A B C D RM CTR FL CL						-0.2
65	M PL S C CB PG CR B W V CT G FG OTHER:	Black		W	A B C D RM CTR FL CL						-0.3
66	M PL S C CB PG CR B W V CT G FG OTHER:	Gray		FL	A B C D RM CTR FL CL						-0.3
67	M PL S C CB PG CR B W V CT G FG OTHER:	Green		oil tank	A B C D RM CTR FL CL						-0.2
68	M PL S C CB PG CR B W V CT G FG OTHER:	Beige		exter. W	A B C D RM CTR FL CL						-0.2
	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						
	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						

Side: Left/Center/Right; Height: Lower/Middle/Upper; Substrate: M: Metal; PL: Plaster; S: Sheetrock; C: Concrete; CB: Cinder Block; CR: Sinks, Water Closets, etc.; CT: Ceramic Tile; PG: Porcelain-glazed Block; B: Brick; W: Wood; V: Vinyl; FG: Fiberglass; G: Glass; Condition: I = Intact; F = Fair; P = Poor; Initial Result: P = Positive; N = Negative;



**APPENDIX D:
PCB BULK SAMPLE FIELD DATA SHEETS
WITH CHAIN OF CUSTODY
AND LABORATORY RESULTS
[NOT APPLICABLE]**



**APPENDIX E:
COMPANY LICENSE, PERSONNEL CERTIFICATIONS
AND LABORATORY ACCREDITATIONS**

New York State – Department of Labor

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

ASBESTOS HANDLING LICENSE

Louis Berger & Assoc., P.C.
16th Floor
48 Wall Street

New York, NY 10005

FILE NUMBER: 09-46778
LICENSE NUMBER: 46778
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 07/16/2015
EXPIRATION DATE: 07/31/2016

Duly Authorized Representative – Prakash Saha:

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

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



Eileen M. Franko, Director
For the Commissioner of Labor

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



MICHAEL GELFAND
CLASS(EXPIRES)
D INSP(02/17) - E MGPL(02/17)
I PD (02/17)

CERT# 98-17113

MUST BE CARRIED ON ASBESTOS PROJECTS

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



DMITRI KIRNOSENKO

CLASS(EXPIRES)

C ATEC(08/16) D INSP(08/16)

H PM (08/16) I PD (08/16)

CERT# 07-01720

OMV# [REDACTED]

MUST BE CARRIED ON ASBESTOS PROJECTS

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER



Expires 12:01 AM April 01, 2017
Issued April 01, 2016

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
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

Sample Preparation Methods

EPA 3050B

NEW
YORK
STATE

Department
of Health

Serial No.: 54297

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



Certificate of Accreditation to ISO/IEC 17025:2005

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 17025:2005.
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).*

2015-06-04 through 2016-06-30

Effective Dates



A handwritten signature in blue ink, appearing to read 'H. R. M. M. M.' or similar.

For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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
<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-9

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA 600/M4-82-020: Interim Method for 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

<u>Code</u>	<u>Description</u>
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.

A handwritten signature in blue ink, appearing to read "James R. Murphy".

For the National Voluntary Laboratory Accreditation Program

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER



Expires 12:01 AM April 01, 2017
Issued April 01, 2016
Revised April 29, 2016

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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

MR. PHILLIP M. WORBY
EMSL ANALYTICAL INC
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

NY Lab Id No: 10872

*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
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 6010C EPA 7000B

Sample Preparation Methods

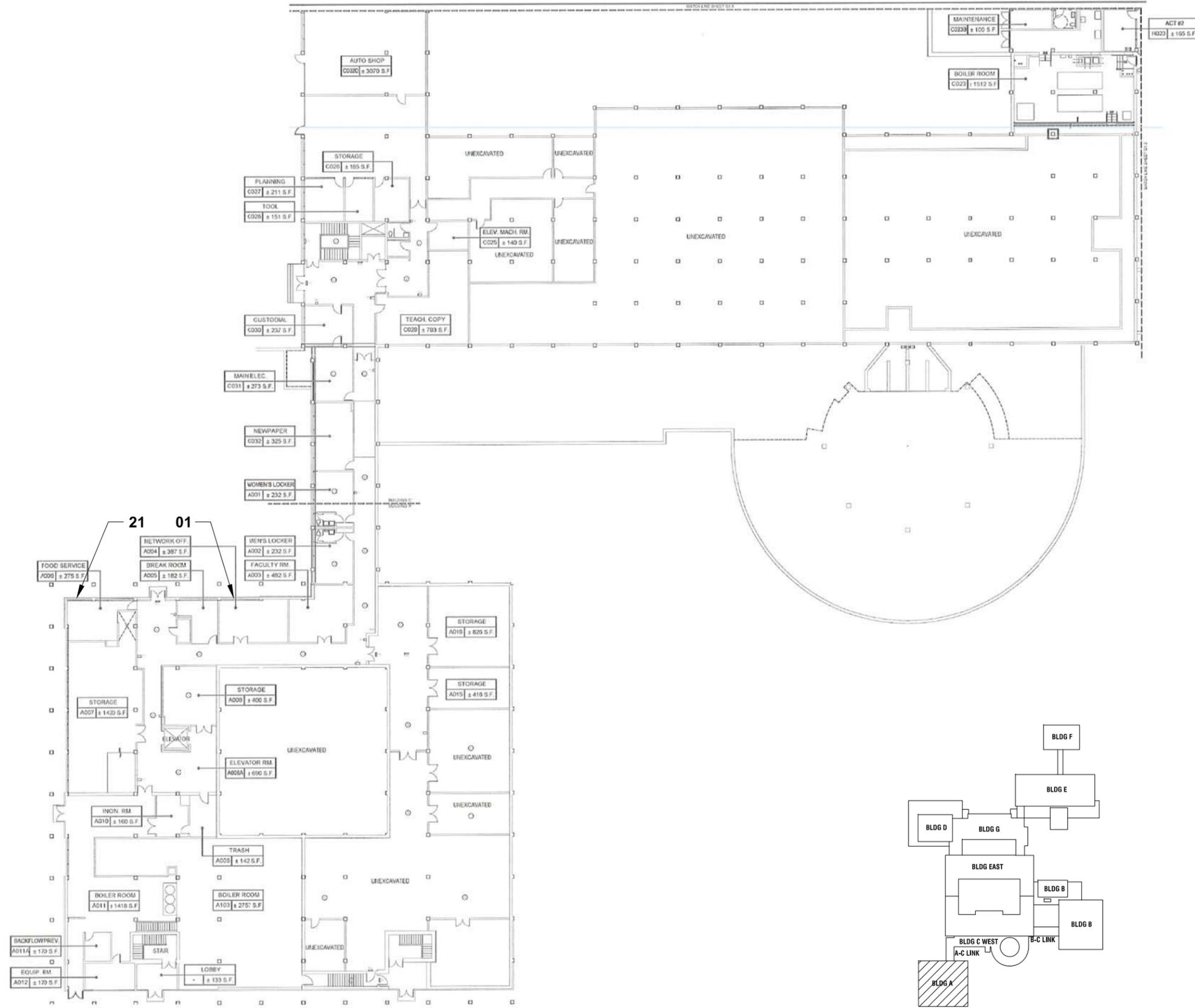
EPA 3050B

Serial No.: 54763

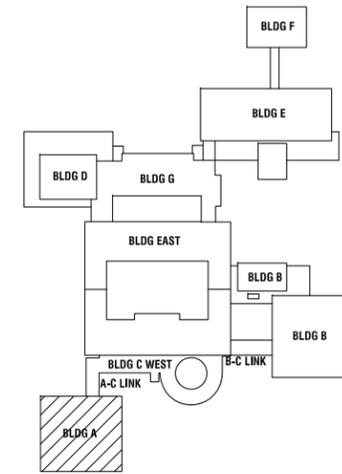
Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify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



**APPENDIX F:
ASBESTOS BULK SAMPLE LOCATION DRAWINGS**



1 GROUND FLOOR PLAN - BUILDING "A"
BSL001 SCALE: NOT TO SCALE



2 KEY PLAN
BSL001 SCALE: NOT TO SCALE



Louis Berger
48 Wall Street, 16th Floor, New York, New York 10005
TEL: 212.612.7900 FAX: 212.363.4341 WWW.louisberger.com

WHITE PLAINS CITY SCHOOL DISTRICT
BUILDING UPGRADES
WHITE PLAINS HIGH SCHOOL AND FIELD STORAGE BUILDING
ELECTRICAL WORK
WHITE PLAINS CITY SCHOOL DISTRICT
580 NORTH STREET
WHITE PLAINS, NY 10605



REVISIONS:

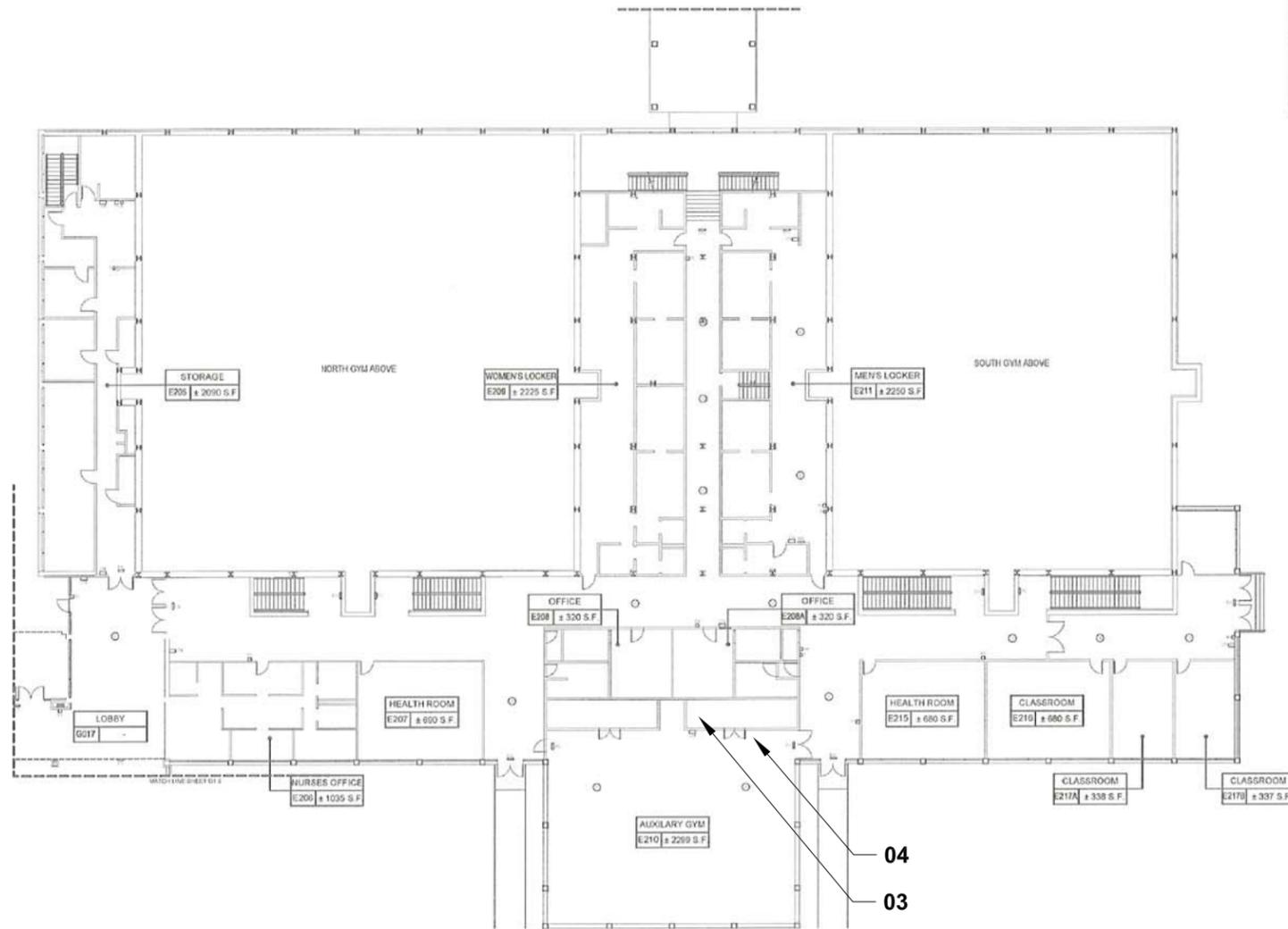
NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605

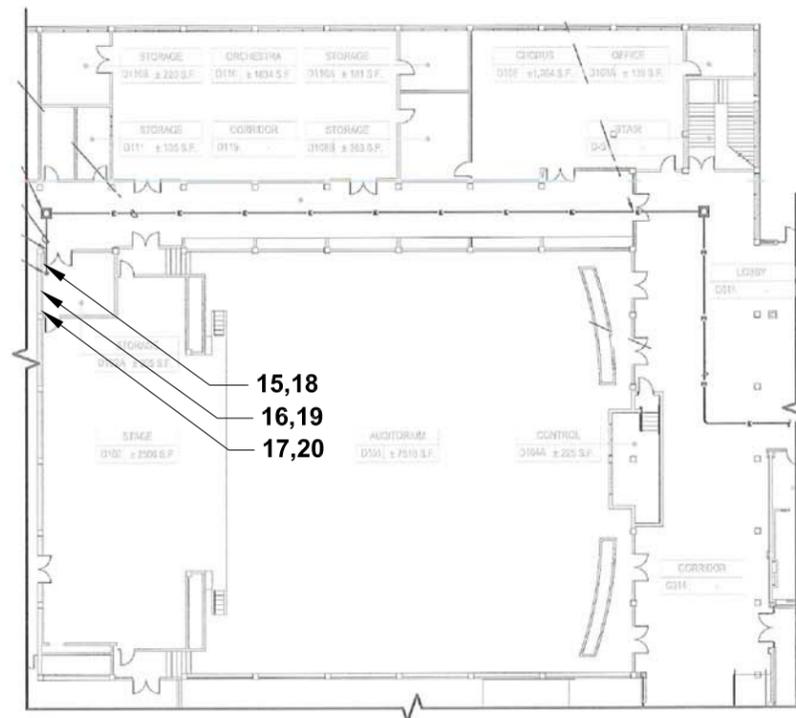
DRAWING TITLE:
BULK SAMPLE LOCATIONS
GROUND FLOOR PLAN - BUILDING "A"

DRAWN BY: J. PEREZ	SCALE: NOT TO SCALE
INSP./INV.: D. KIRNOSENKO	DATE: 06/10/2016
CERTIFICATE NO.: 07-01720	DRAWING NUMBER
CHECKED BY: C. NAPOLITANO	

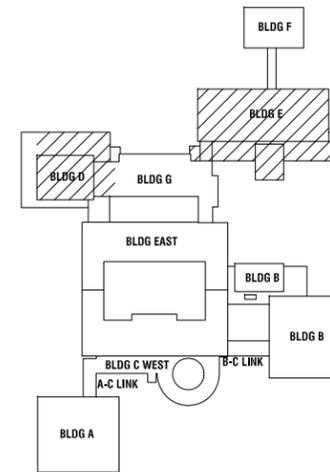
BSL001
DRAWING NUMBER
1 OF 3



1 GROUND FLOOR PLAN - BUILDING "E"
BSL002 SCALE: NOT TO SCALE

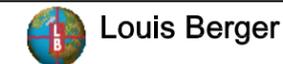
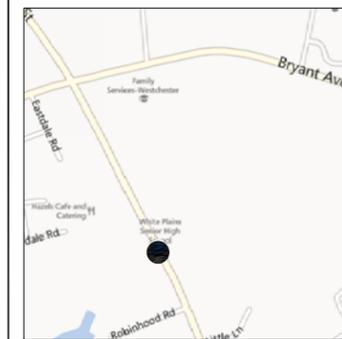


2 PARTIAL GROUND FLOOR PLAN - BUILDING "D"
BSL002 SCALE: NOT TO SCALE



3 KEY PLAN
BSL002 SCALE: NOT TO SCALE

LOCATION PLAN



48 Wall Street, 16th Floor, New York, New York 10005
TEL: 212.612.7900 FAX: 212.363.4341 WWW.louisberger.com

WHITE PLAINS CITY SCHOOL DISTRICT

**BUILDING UPGRADES
WHITE PLAINS HIGH SCHOOL AND
FIELD STORAGE BUILDING
ELECTRICAL WORK
WHITE PLAINS CITY SCHOOL DISTRICT**

**580 NORTH STREET
WHITE PLAINS, NY 10605**



REVISIONS:

NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**

DRAWING TITLE:

**BULK SAMPLE LOCATIONS
GROUND FL. PLAN - BLDGS. "E" & "D"**

DRAWN BY: J. PEREZ SCALE: NOT TO SCALE

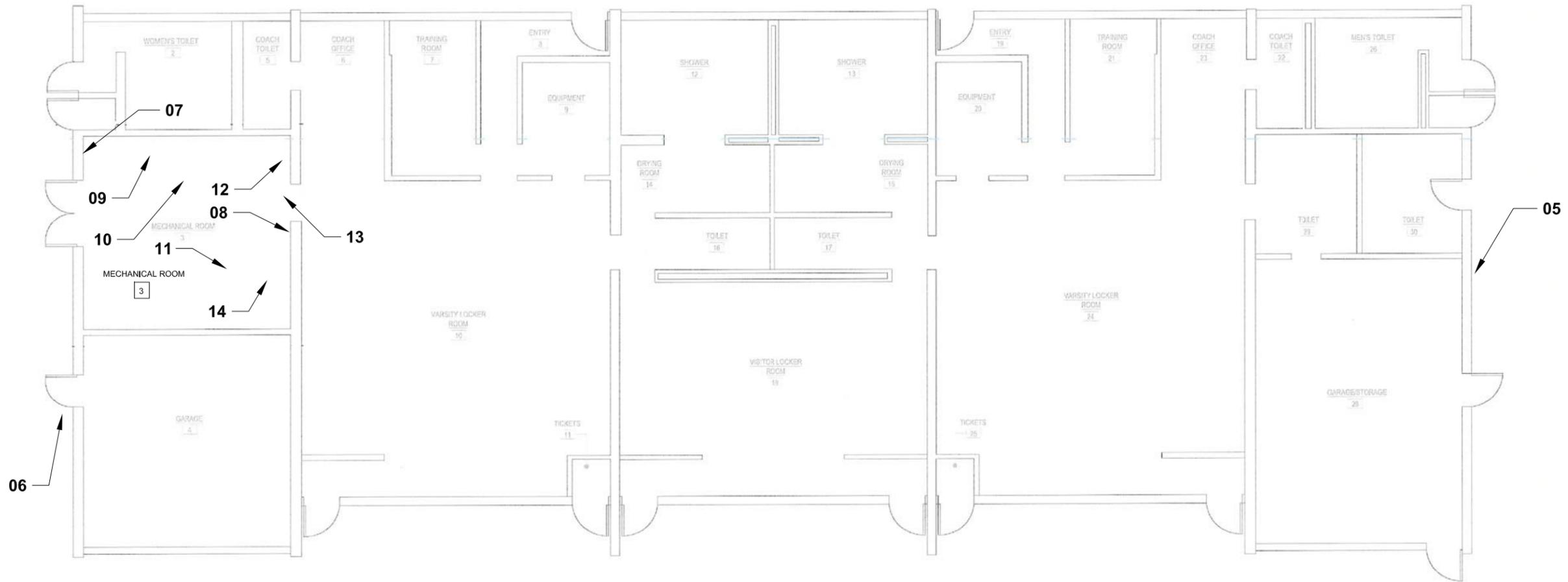
INSP./INV.: D. KIRNOSSENKO DATE: 06/10/2016

CERTIFICATE NO.: 07-01720 DRAWING NUMBER

CHECKED BY: C. NAPOLITANO

BSL002

DRAWING NUMBER
2 OF 3



1 ELECTRICAL FIELD HOUSE PLAN
BSL003 SCALE: NOT TO SCALE



Louis Berger
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WHITE PLAINS CITY SCHOOL DISTRICT
BUILDING UPGRADES
WHITE PLAINS HIGH SCHOOL AND FIELD STORAGE BUILDING
ELECTRICAL WORK
WHITE PLAINS CITY SCHOOL DISTRICT
580 NORTH STREET
WHITE PLAINS, NY 10605



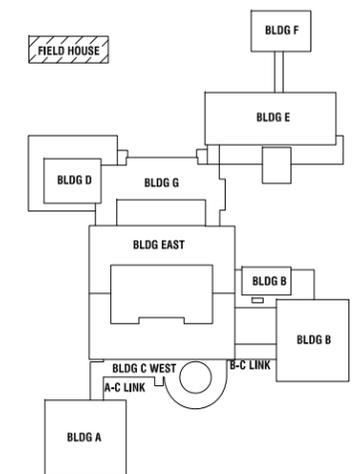
REVISIONS:		
NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605

DRAWING TITLE:
BULK SAMPLE LOCATIONS
ELECTRICAL FIELD HOUSE PLAN

DRAWN BY: J. PEREZ	SCALE: NOT TO SCALE
INSP./INV.: D. KIRNOSSENKO	DATE: 06/06/2016
CERTIFICATE NO.: 07-01720	DRAWING NUMBER
CHECKED BY: C. NAPOLITANO	

BSL003
DRAWING NUMBER
3 OF 3



2 KEY PLAN
BSL003 SCALE: NOT TO SCALE



**APPENDIX G:
ASBESTOS CONTAINING MATERIALS LOCATION
DRAWINGS
[NOT APPLICABLE]**



**APPENDIX H:
PHOTOGRAPHIC DOCUMENTATION**

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605
PHOTODOCUMENTATION LOG**

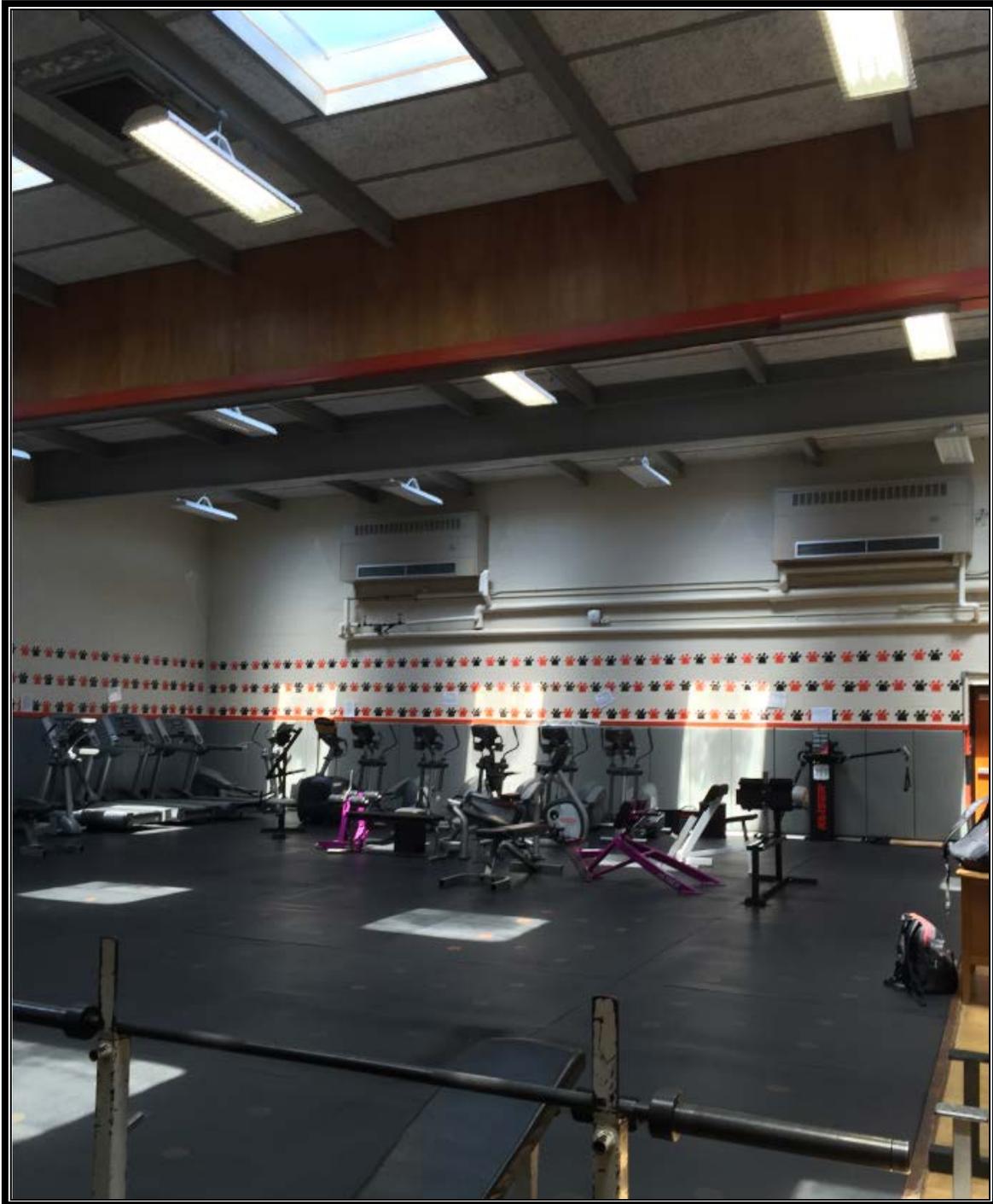


Photo 1: Auxiliary Gym

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605
PHOTODOCUMENTATION LOG**



Photo 2: Field House

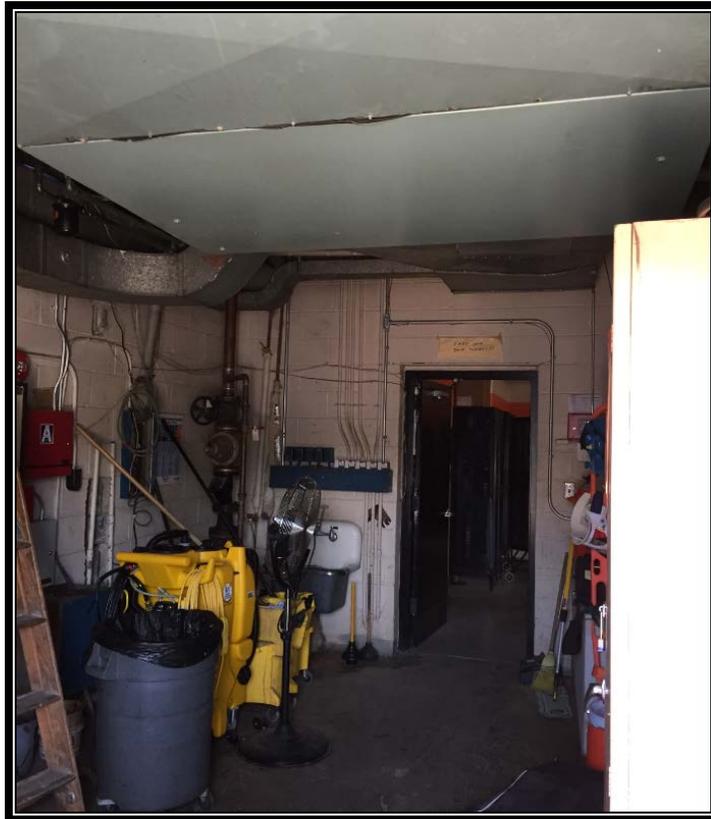


Photo 3: Field House Mechanical Room



**APPENDIX I:
PREVIOUS SURVEY REPORT**

FINAL REPORT OF ENVIRONMENTAL SERVICES

Performed at:

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**



Prepared by:



The Louis Berger Group, Inc.

565 Taxter Road, 5th Floor

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Project No. 3000825

Submission Date: September 11, 2013



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September 11, 2013

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10605

**Subject: Final Report of Environmental Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger Group (LBG) has completed a material Inspection at White Plains High School located at 550 North Street, White Plains, NY 10605. The Inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) associated with proposed renovations.

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,

THE LOUIS BERGER GROUP (LBG)

Craig Napolitano, CHMM
Director, Industrial Hygiene & Hazmat Services



Final Report for Environmental Inspection Services

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4.0 INSPECTION RESULTS.....	9
5.0 AREAS NOT ACCESSIBLE	11
6.0 CONCLUSIONS AND RECOMMENDATIONS	11
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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

Appendix E: PCB Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results

Appendix F: Company License, Personnel Certifications and Laboratory Accreditations

Appendix G: Photographic Documentation



Final Report for Environmental Inspection Services

1.0 EXECUTIVE SUMMARY

Louis Berger Group, Inc (LBG) has performed a renovation specific material Inspection for the presence or absence of Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) at White Plains High School located at 550 North Street, White Plains, NY 10605. The intent of this Inspection was to screen for Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) that may be impacted during the proposed renovations.

Michael Gelfand and Dmitri Kirnossenko of LBG performed this Inspection on July 24, 2013, and Andrew Cheskin performed an additional inspection on September 4, 2013. Mr. Kirnossenko has New York State Department of Labor (NYSDOL) Asbestos Inspector License (Cert# 07-01720). Mr. Gelfand has NYSDOL Asbestos Inspector License (Cert# 98-17113). Mr. Cheskin has NYSDOL Asbestos Inspector License (Cert# 05-04280). The results of the visual inspection and bulk sample analysis determined that the following suspect ACM and PCB materials may be impacted by the renovation project:

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- **9"x9" Beige Floor Tiles (Auditorium)**
- **Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)**
- **Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)**
- **Exterior Metal Wall Panel Frame Caulking (Pool Building)**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

Analytical results of the bulk samples collected indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)



Final Report for Environmental Inspection

Services

- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

The following materials were **assumed to contain asbestos**:

- **9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C**
- **9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor**
- **Ceiling Scratch Coat, Pool Building**
- **Ceiling Tectum Tiles, North and South Gym**
- **Built-up Roofing on Gym Roof**
- **Mechanical Equipment Flashing on Gym Roof**

B. 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);

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)



Final Report for Environmental Inspection

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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 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 25th, 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 25th 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



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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 25th, 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 101048-9)
- New York State Environmental Laboratory Approval Program (Lab No. 11506)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102581)

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



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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.



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3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT

The areas inspected for suspect ACM and PCB materials that may be impacted by the proposed renovations. Locations surveyed include:

- Building Exterior
- Hallways
- Rooms
- Auditorium
- Gymnasiums
- Pool
- Gym Roof, Gym Mechanical Room Roof

A. ASBESTOS-CONTAINING MATERIAL

Materials examined during the Berger Inspection included:

- 9"x9" Beige Floor Tiles (Auditorium)
- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg. A Gas Room Exit)
- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- 9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C



Final Report for Environmental Inspection

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- 9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor
- Ceiling Scratch Coat, Pool Building
- Ceiling Tectum Tiles, North and South Gym
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

Based upon visual inspection and bulk sample analysis asbestos has been confirmed to exist in the following materials:

- **9"x9" Beige Floor Tiles (Auditorium)**
- **Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)**
- **Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)**
- **Exterior Metal Wall Panel Frame Caulking (Pool Building)**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

Asbestos was **not detected** in the following materials via PLM and/or TEM analysis:

- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- Roof Decking, Gym Mechanical Room Roof
- Paper to Foam Insulation, Gym Mechanical Room Roof and Gym Roof
- Fiberboard Insulation, Gym Mechanical Room Roof and Gym Roof



Final Report for Environmental Inspection

Services

- Fabric Barrier, Gym Mechanical Room Roof and Gym Roof
- Tar on Concrete Deck, Gym Roof

The following materials were **assumed to contain asbestos**:

- **9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C**
- **9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor**
- **Ceiling Scratch Coat, Pool Building**
- **Ceiling Tectum Tiles, North and South Gym**

B. PCB-CONTAINING MATERIAL

Materials examined during the Inspection included:

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)

Based upon visual inspection and bulk sample, PCBs have been confirmed to exist in the following materials:

- **None**

PCB was **not detected** in the following testing combinations within the building via bulk sample analysis:

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)



Final Report for Environmental Inspection

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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 renovations. The following suspect materials were sampled and analyzed for asbestos content by Berger:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
A	Auditorium	Baseboard Glue (brown)	NAD
B	Auditorium	Baseboard Molding (brown)	NAD
C	Auditorium	Mastic assoc. with 9"x9" Floor Tiles (black)	NAD
D	Auditorium	9"x9" Beige Floor Tiles	ACM
E	Pool Connection Corridor	2'x4' Ceiling Tiles (grey)	NAD
F	Pool Connection Corridor	Baseboard Glue (brown)	NAD
G	Pool Connection Corridor	Baseboard (brown)	NAD
H	Pool Bldg.	Wall Ceramic Tile Grout (white)	NAD
I	Pool Bldg.	Floor Ceramic Tile Grout (brown)	NAD
J	Pool Bldg.	Glazing at Entrance Aluminum Framing/Panels (white)	NAD
K	Pool Bldg.	Interior Brick Mortar (grey)	NAD
L	Pool Bldg.	Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	ACM
M	Pool Bldg.	Exterior metal Wall Panel Glazing (type 1) (grey)	Contaminated ACM
N	Pool Bldg.	Exterior metal Wall Panel Glazing (type 2) (light grey)	ACM
O	Pool Bldg.	Exterior Metal Wall Panel Frame Caulking (grey)	ACM
P	Auditorium	Cinderblock Mortar (grey)	NAD
Q	1 st Floor Rooms	1'x1' Pinhole Ceiling Tiles (white)	NAD
R	1 st Floor Rooms	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
S	2 nd Floor Rooms	1'x1' Pinhole Ceiling Tiles (white)	NAD
T	2 nd Floor Rooms	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
U	1 st Floor Hallways	1'x1' Pinhole Ceiling Tiles (white)	NAD
V	1 st Floor Hallways	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
W	2 nd Floor Hallways	1'x1' Pinhole Ceiling Tiles (white)	NAD
X	2 nd Floor Hallways	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD



Final Report for Environmental Inspection

Services

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
Y	Bldgs. A, B, C 1 st Floor	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD
Z	Bldgs. A, B, C 2 nd Floor	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD
A1	Bldgs. A, B, C	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD
B1	Bldgs. A, B, C	Wrap around Fiberglass Pipe Insulation (brown)	NAD
C1	Bldgs. A, B, C	Cinderblock Mortar (grey)	NAD
D1	Bldgs. A, B, C	Sheetrock Walls (white)	NAD
E1	Bldgs. A, B, C	Joint Compound assoc. with Sheetrock Walls (white)	NAD
F1	Gym Bldg.	Cinderblock Wall Mortar (grey)	NAD
G1	Gym Roof	Caulking at Metal Exhaust Vent Edges (grey)	NAD
H1	Gym Roof	Caulking at Flashing on Gym Mechanical Roof (black)	ACM
I1	Bldg. A Gas Room Exit (NW corner of Bldg.)	Exterior Door Frame Caulking (grey)	ACM
1	Gym Mechanical Room Roof	Roof Decking	NAD
2	Gym Mechanical Room Roof	Paper to Foam Insulation	NAD
3	Gym Mechanical Room Roof	Fiberboard Insulation	NAD
4	Gym Mechanical Room Roof	Fabric Barrier	NAD
5	Gym Roof	Tar on Concrete Deck	NAD
6	Gym Roof	Paper to Foam Insulation	NAD
7	Gym Roof	Fabric Barrier	NAD

Bold = Positive for ACM NAD = No Asbestos Detected

B. PCB-CONTAINING MATERIAL

The PCB Inspection involved a thorough visual examination of all areas that may be impacted by the proposed renovations. The following suspect materials were tested for PCB content:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
B	Pool Building	Interior Vertical Expansion Joint Caulking at Brick Curtain Walls	ND
C	Pool Building	Exterior metal Wall Panel Glazing (type 1)	ND
D	Pool Building	Exterior metal Wall Panel Glazing (type 2)	ND



Final Report for Environmental Inspection

Services

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
E	Pool Building	Exterior Metal Wall Panel Frame Caulking	ND
F	Bldgs. A, B, C	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	
G	Gym Roof	Caulking at Metal Exhaust Vent Edges	ND
H	Gym Roof	Caulking at Flashing on Gym Mechanical Roof	ND
I	Bldg. A Gas Room Exit (NW corner of Bldg.)	Exterior Door Frame Caulking	ND

Bold = Positive for PCB ND = No PCB Detected

4.2 SAMPLE ANALYSIS TABLE

ACM laboratory analysis results are included in Appendix A.

5.0 AREAS NOT ACCESSIBLE

During the Inspection the following areas were not accessible:

- Void Spaces within Walls: No destructive sampling was performed on concealed spaces in walls to access plenum, chases etc. 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.
- Pool Ceiling

6.0 CONCLUSIONS AND RECOMMENDATIONS

ACM materials have been identified in this inspection that may be impacted as part of the renovations at the White Plains High School. These materials, reported in Section 3.0 of this report, may require complete removal prior to the start of the renovation project. No PCBs were identified during this Inspection.

The ACM & PCB Inspection was conducted at the request of White Plains City School District for the proposed renovations, as provided by email from H2M Senior Project Architect. Any change in the scope of work will require further investigation to accurately classify any additional ACM or PCBs resulting from the modified or updated scope of work.

**LIMITED INSPECTION
FOR
ASBESTOS-CONTAINING MATERIALS**

**White Plains High School
550 North Street
White Plains, NY 10605**



Prepared For:



**White Plains Public Schools
5 Homestead Lane
White Plains, NY 10605**

Prepared By:



LOUIS BERGER & ASSOC., P.C.

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**PROJECT NO. 3000865.00
Submission: November 15, 2013**



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Fax 914 592-1734

www.louisberger.com

November 15, 2013

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10605

**Subject: Report of Limited Asbestos Inspection Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger & Assoc., P.C. (LBA) has completed a limited asbestos materials survey at the White Plains High School located at 550 North Street, White Plains, New York. The survey included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM).

The attached report presents descriptions and results of the material sampling procedures and 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,

LOUIS BERGER & ASSOC., P.C. (LBA)

Craig Napolitano, CHMM
Director, Industrial Hygiene & Hazmat Services



Limited Asbestos Inspection Report

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APPENDICES

Appendix A: Summary of Asbestos Bulk Sample Locations, Laboratory Analysis Results and Chain of Custody

Appendix B: Laboratory Accreditations and Personnel/Company Certifications

Appendix C: Bulk Sample Locations Drawings

Appendix D: Asbestos Containing Material Locations Drawings

Appendix E: Photo Log



Limited Asbestos Inspection Report

1.0 INTRODUCTION

At the request of the White Plains Public Schools, Louis Berger & Assoc., P.C. (LBA) has conducted a limited asbestos materials survey for the presence of asbestos-containing materials (ACM) for the Ceiling Tile Bulk Sampling at White Plains High School located at 550 North Street, White Plains, New York. The asbestos inspection was conducted on October 18, 2013 by Mr. Josue Garcia. Mr. Garcia (Cert# 01-04292) is a New York State Department of Labor (NYS DOL) Asbestos Inspector. The limited inspection involved a visual examination and sampling of all suspect ceiling tiles throughout the school. Inspection results are presented in Appendix A.

2.0 FIELD SURVEY PROCEDURES AND SAMPLE ANALYSIS METHODS

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 survey, 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 25th, 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



Limited Asbestos Inspection Report

procedure of analysis for bulk samples that fall into the category of "Non-friable Organically Bound" (NOB) can be found in the March 25th 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 25th, 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 101048-9)
- New York State Environmental Laboratory Approval Program (Lab No. 11506)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102581)



Limited Asbestos Inspection Report

3.0 SUMMARY OF INSPECTION RESULTS

The limited asbestos inspection was conducted on October 18, 2013 and involved a visual examination of Ground Floor, First Floor and Second Floor. Sampling of all suspect ceiling tiles was also performed. Inspection results are presented in Appendix A.

Asbestos in amounts **greater than 1%** was found in the following material:

Throughout Building:

- **None**

Laboratory analysis and/or visual inspection confirmed **no asbestos** present in amounts greater than 1% in samples collected from the following materials:

Throughout Building:

- 1'x1' Pinhole Pattern Ceiling Tile, White
- 2'x4' Fissured Ceiling Tile, White
- 1'x1' Gouged Ceiling Tile, White
- 2'x4' Small Pinhole Ceiling Tile, White
- 1'x1' Fissured Ceiling Tile, White
- 2'x4' (2'x2' Design) Ceiling Tile, White
- 2'x2' Small Pinhole Ceiling Tile, White

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on analytical results and our observations, the following materials were determined to be ACM:

- **None**

In the event that identified ACMs are to be disturbed by renovation work, proper asbestos abatement procedures are required to be implemented prior to the commencement of such work. All asbestos abatement work must be performed in accordance with all applicable Federal, State and Local rules and regulations. A licensed abatement contractor must perform the removal of all friable and non-friable ACM.



Limited Asbestos Inspection Report

5.0 ASBESTOS ABATEMENT COST ESTIMATES

The unit costs listed in this section are based on other projects of similar size, location and complexity. The cost estimate is budgetary in nature, since there are many variables that will affect the final construction cost. The costs presented are based on extrapolations from current construction prices available to us for comparable work in this area. "Means" guides were consulted, when applicable, with regional price adjustments for this area. However, Berger relies primarily on costs obtained from similar work recently bid.

Prices are based on current costs associated with prevailing wages and a competitive bid situation. Quantities are derived from our observation and linear takes-offs where drawings were made available to us or schematic drawing could easily be created from available information. Actual construction costs may vary based on a fully developed scope of work delineated in construction plans and specifications.

There will be other factors affecting the costs at the time projects are actually scheduled and bid. Such factors include the overall size of the total work package bid by a contractor, unforeseen conditions, state of the economy, inflation and the availability of materials. If the project is phased, escalation in cost should be anticipated.

Cost estimates have been prepared with the following assumptions:

- Union labor or prevailing wage
- Insurance, profit and overhead costs have been estimated and will vary among contractors
- All work areas may not be able to be abated in a continuous fashion and down time may occur for varying periods.
- Electric power and water to be provided by others
- Prices do not include air monitoring costs
- Reinstallation work has not been factored into the cost estimates

Asbestos Material	Quantity	Unit Price	Cost Estimate
	0 SF	\$10	\$0
		<i>ACM Removal Sub-Total</i>	\$0
		<i>Decontaminations Units</i>	\$0
		<i>Mobilization & Demobilization</i>	\$0
		<i>Sub-Totals</i>	\$0
		<i>Insurance @ 7%</i>	\$0
		<i>Profit/Overhead @ 15%</i>	\$0

Notes:

1. The above cost includes the waste hauling charges, filing fees and other miscellaneous cost associated with asbestos abatement by the abatement contractor.



September 21, 2016
Revised: September 26, 2016

Mr. Frank Stefanelli
Director of Facilities
White Plains Public Schools
580 North Street
White Plains, NY 10605

Subject: Report for Limited Asbestos Survey Services in Conjunction with the 5 Roof Solar Panel Installation Project at White Plains High School 550 North Street White Plains NY

Dear Mr. Stefanelli:

Louis Berger (Berger) has completed limited asbestos materials survey at the White Plains High School located at 550 North Street, White Plains NY. The survey was conducted on September 13, 2016 by Marvin Luccioni, a NYS DOL Licensed Asbestos Inspector (03-11021). The survey included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) for the upcoming 5 roof solar panel installation project. Berger inspected the following suspect materials in order to address specific concerns and suspect materials to be impacted by the current scope of work (SOW).

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
Samples Collected on September 13, 2016			
1	Roof C	Tar on Concrete, Black	NAD
2	Roof C	Roofing Felt Pape, Black	NAD
3	Roof C	Roofing Rubber Membrane w/ Glue	NAD
4	Roof C	Tar on Roofing Membrane, Black	NAD
5	Roof G	Gypsum Planking on Metal Deck, White	NAD
6	Roof G	Roofing Felt Paper, Black	NAD
7	Roof G	Brown Insulation	NAD
8	Roof G	Roofing Rubber membrane w/ Glue	NAD
9	Roof G	Tar on Roofing Membrane, Black	<1% Chrysotile
10	Roof A	Tar on Concrete, Black	NAD
11	Roof A	Roofing Felt Pape, Black	NAD
12	Roof A	Roofing Rubber Membrane w/ Glue	NAD



HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
13	Roof A	Tar on Roofing Membrane, Black	NAD
14	Roof B	Tar on Concrete, Black	NAD
15	Roof B	Roofing Felt Pape, Black	NAD
16	Roof B	Roofing Rubber Membrane w/ Glue	NAD
17	Roof B	Tar on Roofing Membrane, Black	NAD
18	Café Roof	Gypsum Planking on Metal Deck, White	NAD
19	Café Roof	Roofing Felt Paper, Black	NAD
20	Café Roof	Brown Insulation	NAD
21	Café Roof	Roofing Rubber membrane w/ Glue	NAD
22	Roof A, B & Exterior Façades	Ext. Brick Mortar, Gray	NAD
---	Electrical Room near Custodians Office	Interior Concrete	Non-suspect
---	Exterior Façade outside Electrical Room near Custodians Office	Exterior Concrete	Non-suspect
---	Exterior Façade outside Electrical Room near Custodians Office	Exterior Metal Panels	Non-suspect
---	Exterior Façade outside Electrical Room near Custodians Office	Caulking to Exterior Metal Panels, Gray	Assumed ACM
---	Exterior Façade outside Electrical Room near Custodians Office	Limestone Slabs below Windows	Non-suspect
---	Exterior Façade outside Electrical Room near Custodians Office	Weatherproofing Material behind Limestone Slabs, Black	Assumed ACM
AHERA Report & Previous Survey's Reports			
---	Electrical Room near Custodians Office	1'x1' Pinhole Ceiling Tiles, White	NAD
---	Electrical Room near Custodians Office	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown	NAD
---	Electrical Room near Custodians Office	Fittings Insulation assoc. with Fiberglass Pipe Insulation, Gray	NAD
---	Electrical Room near Custodians Office	Wrap around Fiberglass Pipe Insulation	NAD
---	Electrical Room near Custodians Office	Cinderblock Mortar, Gray	NAD



HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
---	Electrical Room near Custodians Office	Sheetrock Walls, White	NAD
---	Electrical Room near Custodians Office	Joint Compound assoc. with Sheetrock Walls, White	NAD

NAD = No Asbestos Detected

It is our hope that the information provided in this letter has met the project requirements. Thank you for the opportunity to provide you and your staff with our continued services. Please contact me at 212-612-7938 if you have any questions or require any additional information.

Sincerely,
Louis Berger

Marvin Luccioni
Principle Environmental Specialist, Emergency Management & IH Services



Letter Report For Environmental Inspection Services

APPENDIX A SAMPLE ANALYSIS RESULTS IN TABULAR FORM WHITE PLAINS HIGH SCHOOL 550 NORTH STREET WHITE PLAINS, NY

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
1	01	Roof C	Tar on Concrete, Black	NAD	NAD
	02			NAD	NAD
2	03	Roof C	Roofing Felt Pape, Black	NAD	N/A
	04			NAD	N/A
3	05	Roof C	Roofing Rubber Membrane w/ Glue	NAD	NAD
	06			NAD	NAD
4	07	Roof C	Tar on Roofing Membrane, Black	NAD	NAD
	08			NAD	NAD
5	09	Roof G	Gypsum Planking on Metal Deck, White	NAD	N/A
	10			NAD	N/A
6	11	Roof G	Roofing Felt Paper, Black	NAD	N/A
	12			NAD	N/A
7	13	Roof G	Brown Insulation	NAD	N/A
	14			NAD	N/A
8	15	Roof G	Roofing Rubber membrane w/ Glue	NAD	NAD
	16			NAD	NAD

Bold = Positive for ACM
NAD = No Asbestos Detected

N/A = Not Applicable
NA/PS = Not analyzed/ positive sample



Letter Report For Environmental Inspection Services

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
9	17	Roof G	Tar on Roofing Membrane, Black	<1% Chrysotile	<1% Chrysotile
	18			NAD	<1% Chrysotile
10	19	Roof A	Tar on Concrete, Black	NAD	NAD
	20			NAD	NAD
11	21	Roof A	Roofing Felt Pape, Black	NAD	N/A
	22			NAD	N/A
12	23	Roof A	Roofing Rubber Membrane w/ Glue	NAD	NAD
	24			NAD	NAD
13	25	Roof A	Tar on Roofing Membrane, Black	NAD	NAD
	26			NAD	NAD
14	27	Roof B	Tar on Concrete, Black	NAD	NAD
	28			NAD	NAD
15	29	Roof B	Roofing Felt Pape, Black	NAD	N/A
	30			NAD	N/A
16	31	Roof B	Roofing Rubber Membrane w/ Glue	NAD	NAD
	32			NAD	NAD
17	33	Roof B	Tar on Roofing Membrane, Black	NAD	NAD
	34			NAD	NAD
18	35	Café Roof	Gypsum Planking on Metal Deck, White	NAD	N/A
	36			NAD	N/A
19	37	Café Roof	Roofing Felt Paper, Black	NAD	N/A

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample



Letter Report For Environmental Inspection Services

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
	38			NAD	N/A
20	39	Café Roof	Brown Insulation	NAD	N/A
	40			NAD	N/A
21	41	Café Roof	Roofing Rubber membrane w/ Glue	NAD	NAD
	42			NAD	NAD
22	43	Roof A	Ext. Brick Mortar, Gray	NAD	N/A
	44	Roof B		NAD	N/A

Bold = Positive for ACM
NAD = No Asbestos Detected

N/A = Not Applicable
NA/PS = Not analyzed/ positive sample

061612820

LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 1 OF 4

PROJ NO: Z011353 013

LOCATION(S) SURVEYED: Roofs A, B, C, G, Cape Roof

CLIENT: W.P.C.S.D CAPIS ID#: _____

PROJECT MANAGER: _____

PROJECT SITE: WHITE PLAINS HIGH SCHOOL

DATE(S) OF INSPECTION: 09/13/16

PROJECT ADDRESS: 550 NORTH ST., WHITE PLAINS NY 10605

Inspector(s) M. Muccioni

LOUIS BERGER
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
 ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____
muccioni@louisberger.com
 TURNAROUND TIME: 72 HRS
 FRIABLE 24 HRS. NOB/TEM 48 HRS.

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LF/SF)	FIELD NOTES	
1	01	ROOF C	TAR ON CONCRETE, BLACK		BOT. STAPE 1 ST POSITIVE	
↓	02					
2	03			ROOFING FELT PAPER, BLACK		
↓	04					
3	05			ROOFING RUBBER MEMBRANE W/ GLUE.		
↓	06					
4	07	ROOF G	TAR ON ROOFING MEMBRANE, BLACK			
↓	08					
5	09			GYP SUM PLANKING ON METAL DECK, WHITE		BOT. STAPE 1 ST POSITIVE
↓	10					
6	11			ROOFING FELT PAPER, BLACK		
↓	12					

CHAIN OF CUSTODY

Relinquished by (print) <u>M. Muccioni</u> (Sign) <u>[Signature]</u>	09/15/16 22 AM/PM	Relinquished by (print) _____ (Sign) _____	1/1 AM/PM	Relinquished by (print) _____ (Sign) _____	1/1 AM/PM
Received by (print) _____ (Sign) _____	1/1 AM/PM	Received by (print) <u>Pete Hayes</u> (Sign) <u>[Signature]</u>	9/17/16 7:30 AM/PM	Received by (print) <u>F. Calderon</u> (Sign) <u>[Signature]</u>	9/19/16 AM/PM

[Signature] 9-21-16

Louis Monte De Dea 9/21/16

GENERAL NOTES: All analytical NDBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

OrderID: 061612820

061612820

LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 2 OF 4

PROJ NO: 2011353.013
 CLIENT: WPCSO CAPIS ID#: _____
 PROJECT SITE: WPHS
 PROJECT ADDRESS: _____

LOCATION(S) SURVEYED: _____
 PROJECT MANAGER: _____
 DATE(S) OF INSPECTION: 09/13/16
 Inspector(s) _____

LOUIS BERGER
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
 ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____ ; _____
 TURNAROUND TIME:
 FRIABLE 24 HRS. NOB/TEM 48 HRS.

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
7	13	Roof G	BROWN INSULATION		CONTI FROM PREVIOUS NOTES
↓	14				
8	15		ROOFING RUBBER MEMBRANE W/ GLUE		
↓	16				
9	17		TAR ON ROOFING MEMBRANE		
↓	18				
10	19	Roof A	TAR ON CONCRETE, BLACK		STDFE 1ST POSITIVE
↓	20				
11	21		ROOFING FELT PAPER, BLACK		
↓	22				
12	23		ROOFING RUBBER MEMBRANE W/ GLUE		TOP
↓	24				

CHAIN OF CUSTODY

Relinquished by (print) <u>M. Accaroni</u>	(Sign)	<u>09/15/16</u>	<u>2:00</u> AM/PM	Relinquished by (print) _____	(Sign) _____	<u>11</u>	AM/PM	Relinquished by (print) _____	(Sign) _____	<u>11</u>	AM/PM
Received by (print) _____	(Sign) _____	<u>11</u>	AM/PM	Received by (print) <u>P. Hayes</u>	(Sign)	<u>9/17/16</u>	<u>7:59</u> AM/PM	Received by (print) <u>P. Calder</u>	(Sign)	<u>9/19/16</u>	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group. *9/21/16*

Order ID: 061612820

Page 2 of 4

061612820

LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 3 OF 4

PROJ NO: 2011353.013

LOCATION(S) SURVEYED:

CLIENT: CAPIS ID#:

PROJECT MANAGER:

PROJECT SITE: WPHS.

DATE(S) OF INSPECTION: 09/13/16

PROJECT ADDRESS:

Inspector(s):

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: ; TURNAROUND TIME:
FRIABLE 24 HRS. NOB/TEM 48 HRS.

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LFSF)	FIELD NOTES
13	25	ROOF A	TPL ON ROOFING MEMBRANE, BLACK		REFER PREVIOUS NOT FROM 19.
↓	26	↓	↓		↓
14	27	ROOF B	TAR ON CONCRETE, BLACK		Bot. STOPS 1ST POSITIVE
↓	28	↓	↓		↓
15	29		ROOFING FELT PAPER, BLACK		2016 SEP 17 A 7 59 PHOTOGRAPHED ASBESTOS LABORATORY
↓	30		↓		
16	31		ROOFING RUBBER MEMBRANE w/ GLUE		
↓	32		↓		
17	33		TAR ON ROOFING MEMBRANE, BLACK		
↓	34		↓		
18	35	CAPE ROOF	GYP SUM PLANKING ON METAL DECK, WHITE		
↓	36	↓	↓		

CHAIN OF CUSTODY

Relinquished by: (print) M. Luccaroni	(Sign) <i>[Signature]</i>	09/15/16	22:00 AM/PM	Relinquished by: (print) []	(Sign) []	[]	[]	AM/PM
Received by: (print) []	(Sign) []	[]	AM/PM	Relinquished by: (print) P. Calder	(Sign) <i>[Signature]</i>	[]	[]	AM/PM

K. Har 9/21/16 Louis Montes De Oben 9/21/16

GENERAL NOTES: All inconclusive NORs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

Order ID: 061612820

Page 3 OF 4



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com / carleplacelab@emsl.com>

EMSL Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Attention: Marvin Luccioni
Louis Berger U.S., Inc
48 Wall St.
New York, NY 10005

Phone: (718) 730-2741
Fax:
Received Date: 09/17/2016 7:59 AM
Analysis Date: 09/19/2016 - 09/21/2016
Collected Date: 09/13/2016

Project: Proj# 2011353.013, Client: W.P.C.S.D, White Plains High School, 550 North St, White Plains, NY 10605, Roofs A,B,C,G, Caf E Roof

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 1-01 <i>061612820-0001</i>			Description Roof C - Tar on Concrete, Black		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 1-02 <i>061612820-0002</i>			Description Roof C - Tar on Concrete, Black		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 2-03 <i>061612820-0003</i>			Description Roof C - Roofing Felt Paper, Black		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Tan/ Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Tan/ Black		100.00% Other	None Detected
Sample ID 2-04 <i>061612820-0004</i>			Description Roof C - Roofing Felt Paper, Black		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Tan/ Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Tan/ Black		100.00% Other	None Detected
Sample ID 3-05 <i>061612820-0005</i>			Description Roof C - Roofing Rubber Membrane w/ Glue		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	1.40% Glass	98.60% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected

Initial Report From: 09/21/2016 02:54:39



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 3-06 <i>061612820-0006</i>			Description Roof C - Roofing Rubber Membrane w/ Glue Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	1.30% Glass	98.70% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 4-07 <i>061612820-0007</i>			Description Roof C - Tar on Roofing Membrane, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 4-08 <i>061612820-0008</i>			Description Roof C - Tar on Roofing Membrane, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 5-09 <i>061612820-0009</i>			Description Roof G - Gypsum Planking on Metal Deck, White Homogeneity Homogeneous		
PLM NYS 198.1 Friable	09/19/2016	White	1.00% Cellulose 2.00% Glass	97.00% 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 5-10 <i>061612820-0010</i>			Description Roof G - Gypsum Planking on Metal Deck, White Homogeneity Homogeneous		
PLM NYS 198.1 Friable	09/19/2016	White	1.00% Cellulose 2.00% Glass	97.00% 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 6-11 <i>061612820-0011</i>			Description Roof G - Roofing Felt Paper, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	White/ Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	White/ Black		100.00% Other	None Detected

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<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 6-12 061612820-0012			Description Roof G - Roofing Felt Paper, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Tan/ Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Tan/ Black		100.00% Other	None Detected
Sample ID 7-13 061612820-0013			Description Roof G - Brown Insulation Homogeneity Heterogeneous		
PLM NYS 198.1 Friable	09/19/2016	Brown	93.00% Cellulose	7.00% 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 7-14 061612820-0014			Description Roof G - Brown Insulation Homogeneity Homogeneous		
PLM NYS 198.1 Friable	09/19/2016	Brown	97.00% Cellulose	3.00% 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 8-15 061612820-0015			Description Roof G - Roofing Rubber Membrane w/ Glue Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 8-16 061612820-0016			Description Roof G - Roofing Rubber Membrane w/ Glue Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 9-17 061612820-0017			Description Roof G - Tar on Roofing Membrane Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	None	100.00% Other	Inconclusive : <1.00% Chrysotile
TEM NYS 198.4 NOB	09/21/2016	Black	None	100.00% Other	<1.00% Chrysotile

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EMSL Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 9-18 <i>061612820-0018</i>		Description	Roof G - Tar on Roofing Membrane		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black	None	100.00% Other	<1.00% Chrysotile
Sample ID 10-19 <i>061612820-0019</i>		Description	Roof A - Tar on Concrete, Black		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 10-20 <i>061612820-0020</i>		Description	Roof A - Tar on Concrete, Black		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 11-21 <i>061612820-0021</i>		Description	Roof A - Roofing Felt Paper, Black		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Tan	1.00% Glass	99.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Tan		100.00% Other	None Detected
Sample ID 11-22 <i>061612820-0022</i>		Description	Roof A - Roofing Felt Paper, Black		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Tan	1.10% Glass	98.90% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Tan		100.00% Other	None Detected
Sample ID 12-23 <i>061612820-0023</i>		Description	Roof A - Roofing Rubber Membrane w/ Glue		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	1.10% Glass	98.90% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected

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EMSL Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 12-24 061612820-0024			Description Roof A - Roofing Rubber Membrane w/ Glue Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	2.60% Glass	97.40% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 13-25 061612820-0025			Description Roof A - Tar on Roofing Membrane, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 13-26 061612820-0026			Description Roof A - Tar on Roofing Membrane, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 14-27 061612820-0027			Description Roof B - Tar on Concrete, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 14-28 061612820-0028			Description Roof B - Tar on Concrete, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 15-29 061612820-0029			Description Roof B - Roofing Felt Paper, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Tan	1.30% Glass	98.70% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Tan		100.00% Other	None Detected

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EMSL Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 15-30 061612820-0030			Description Roof B - Roofing Felt Paper, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Tan	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Tan		100.00% Other	None Detected
Sample ID 16-31 061612820-0031			Description Roof B - Roofing Rubber Membrane w/Glue Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	1.10% Glass	98.90% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 16-32 061612820-0032			Description Roof B - Roofing Rubber Membrane w/Glue Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 17-33 061612820-0033			Description Roof B - Tar on Roofing Membrane, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 17-34 061612820-0034			Description Roof B - Tar on Roofing Membrane, Black Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Black		100.00% Other	None Detected
Sample ID 18-35 061612820-0035			Description Café Roof - Gypsum Planking on Metal Deck, White Homogeneity Homogeneous		
PLM NYS 198.1 Friable	09/19/2016	White	1.00% Cellulose 2.00% Glass	97.00% 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 Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 18-36 <i>061612820-0036</i>		Description	Café Roof - Gypsum Planking on Metal Deck, White		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/19/2016	White	1.00% Cellulose 2.00% Glass	97.00% 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 19-37 <i>061612820-0037</i>		Description	Café Roof - Roofing Felt Paper, Black		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	White/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	White/ Black		100.00% Other	None Detected
Sample ID 19-38 <i>061612820-0038</i>		Description	Café Roof - Roofing Felt Paper, Black		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	White/ Black	<1.00% Glass	100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	White/ Black		100.00% Other	None Detected
Sample ID 20-39 <i>061612820-0039</i>		Description	Café Roof - Brown Insulation		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	09/19/2016	Brown	95.00% Cellulose	5.00% 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 20-40 <i>061612820-0040</i>		Description	Café Roof - Brown Insulation		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	09/19/2016	Brown	97.00% Cellulose	3.00% 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 21-41 <i>061612820-0041</i>		Description	Café Roof - Roofing Rubber Membrane Glue		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Brown/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Brown/ Black		100.00% Other	None Detected

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EMSL Order: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 21-42 061612820-0042		Description	Café Roof - Roofing Rubber Membrane Glue		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	09/20/2016	Brown/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	09/21/2016	Brown/ Black		100.00% Other	None Detected
Sample ID 22-43 061612820-0043		Description	Roof A - Ext. Brick Mortar, Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	09/19/2016	Gray		30.00% Ca Carbonate 20.00% Non-fibrous (other) 50.00% 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 22-44 061612820-0044		Description	Roof B - Ext. Brick Mortar, Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	09/19/2016	Gray		30.00% Ca Carbonate 25.00% 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: 061612820
Customer ID: LBAP78
Customer PO: 2011353.013
Project ID:

Test Report:Asbestos Analysis of Bulk Material

PLM 06-02- Leica DM750P- Serial # 931374717AX003/10/10
PLM 06-03- Leica DM EP - Serial # 411239923NV0034
TEM Scope 06-01 – Jeol 100 CXII Serial # EM156146-37

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: 9/17/2016
Analysis Completed Date: 9/20/2016

Sample Receipt Time: 7:59 AM
Analysis Completed Time: 10:07 PM

Analyst(s):

Pedro Calderon PLM NYS 198.1 Friable (10)

Tomas Montes De Oca PLM NYS 198.6 NOB (34)

Keith McWilliams TEM NYS 198.4 NOB (34)

Samples reviewed and approved by:

Michelle McGowan, 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 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. Carle Place, NY NYS ELAP 11469

Initial Report From: 09/21/2016 02:54:39

New York State – Department of Labor

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

ASBESTOS HANDLING LICENSE

The Louis Berger Group, Inc.
16th Floor
48 Wall Street

New York, NY 10005

FILE NUMBER: 03-0940
LICENSE NUMBER: 29635
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 12/16/2015
EXPIRATION DATE: 12/31/2016

Duly Authorized Representative – Craig Napolitano:

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



Eileen M. Franko, Director
For the Commissioner of Labor

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



MARVIN LUCCIONI
CLASS(EXPIRES)
C ATEC(02/17) D INSP(02/17)
H PM (02/17) I PD (02/17)

CERT# 03-11021

MUST BE CARRIED ON ASBESTOS PROJECTS

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER



Expires 12:01 AM April 01, 2017
Issued April 01, 2016

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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

MS. MICHELLE MCGOWAN
EMSL ANALYTICAL, INC.
528 MINEOLA AVE.
CARLE PLACE, NY 11514

NY Lab Id No: 11469

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
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

Sample Preparation Methods

EPA 3050B

Serial No.: 54283

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UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

June 15, 2016

Michelle McGowan
EMSL Analytical, Inc.
528 Mineola Ave.
Carle Place, NY 11514

NVLAP Lab Code: 101048-10

Dear Ms. McGowan,

Thank you for continuing your accreditation for Asbestos Fiber Analysis under the National Voluntary Laboratory Accreditation Program (NVLAP). This accreditation is effective until June 30, 2017, provided that your laboratory continues to comply with the accreditation requirements contained in the NVLAP Procedures.

Your updated accreditation documents are enclosed. You may reproduce these documents in their entirety and use the NVLAP symbol and/or term to reference your accredited status in accordance with the requirements published in NIST Handbook 150, 1.8. Accreditation does not relieve your laboratory from observing and complying with any applicable existing laws and/or regulations.

We are pleased to have you participate in NVLAP and look forward to your continued association with this program. If you have any questions concerning your NVLAP accreditation, please direct them to Hazel Richmond, Program Manager, Laboratory Accreditation Program, National Institute of Standards and Technology, 100 Bureau Dr. Stop 2140, Gaithersburg, MD 20899-2140; (301) 975-3024.

Sincerely,

Dana S. Leaman, Chief
National Voluntary Laboratory Accreditation Program





SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
528 Mineola Ave.
Carle Place, NY 11514
Ms. Michelle McGowan
Phone: 516-997-7251 Fax: 516-997-7528
Email: mmcgowan@emsl.com
<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-10

Bulk Asbestos Analysis

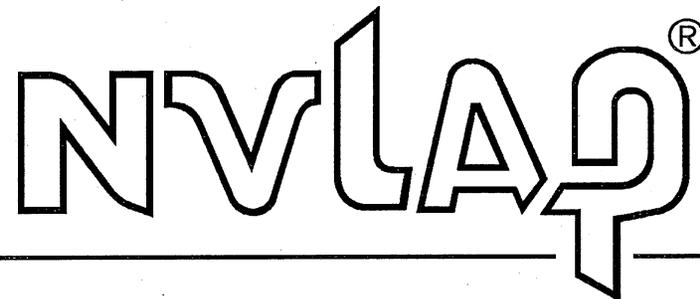
<u>Code</u>	<u>Description</u>
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
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

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-10

EMSL Analytical, Inc.
Carle Place, NY

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

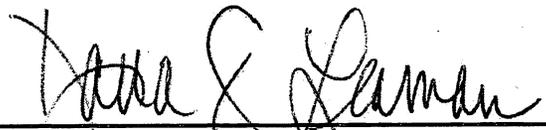
Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
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).*

2016-07-01 through 2017-06-30

Effective Dates




For the National Voluntary Laboratory Accreditation Program



March 31, 2016

Laboratory ID: 102344

Michelle McGowan
EMSL Analytical, Inc.
528 Mineola Ave.
Carle Place, NY 11514

Dear Ms. McGowan:

Congratulations! The AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC's Analytical Accreditation Board (AAB) has approved EMSL Analytical, Inc. as an accredited Industrial Hygiene, Environmental Lead and Environmental Microbiology laboratory.

Accreditation documentation includes the IHLAP, ELLAP and EMLAP accreditation certificate, scope of accreditation document and a copy of the current AIHA-LAP, LLC license agreement (if your completed agreement is not on file at AIHA-LAP, LLC). The accreditation symbol has been designed for use by all AIHA-LAP, LLC accredited laboratories. If your laboratory chooses to use the symbol in its advertising the laboratory's accreditation, you must complete and return the AIHA-LAP, LLC license agreement to a Laboratory Accreditation Specialist. Once submitted, an electronic copy of the accreditation symbol will be sent to you. Please inform us if your laboratory does not wish to use the symbol in advertising.

Laboratory accreditation shall be maintained by continued compliance with IHLAP, ELLAP and EMLAP requirements (*see Policy Modules 2B, 2C, 2D, and 6*), which includes proficient participation in AIHA-LAP, LLC approved proficiency testing, demonstration of competency, or round robin program as indicated on the AIHA-LAP "Approved PT and Round Robin" webpage, its associated Scope/PT table, and as required in Policy Module 6, for all Fields of Testing (FoTs) for which the laboratory is accredited. An accredited laboratory that wishes to expand into a new FoT must submit an updated accreditation application to AIHA-LAP, LLC for review by the AAB.

Any changes in ownership, laboratory location, personnel, FoTs/Methods, or significant procedural changes shall be reported to AIHA-LAP, LLC in writing within twenty (20) business days of the change.

The accreditation certificate is the property of AIHA-LAP, LLC and must be returned to us should your laboratory withdraw or be removed from the IHLAP, ELLAP and EMLAP.

Again, congratulations. If you have any questions, please contact Lauren Schnack, Laboratory Accreditation Specialist, at (703) 846-0716.

Sincerely,

Cheryl O. Morton
Managing Director
AIHA Laboratory Accreditation Programs, LLC

AIHA Laboratory Accreditation Programs, LLC
3141 Fairview Park Drive, Suite 777, Falls Church, VA 22042 USA
main +1 703-846-0736 fax +1 703-207-8558

Twitter: @AIHA_LAP_LLC

R3 05/05/2015

Page 1 of 1



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

528 Mineola Ave., Carle Place, NY 11514

Laboratory ID: 102344

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- | | |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> INDUSTRIAL HYGIENE | Accreditation Expires: June 01, 2018 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL LEAD | Accreditation Expires: June 01, 2018 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: June 01, 2018 |
| <input type="checkbox"/> FOOD | Accreditation Expires: |
| <input type="checkbox"/> UNIQUE SCOPES | Accreditation Expires: |

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016

Date Issued: 03/31/2016



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
528 Mineola Ave., Carle Place, NY 11514

Laboratory ID: **102344**
Issue Date: 03/31/2016

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 10/01/2005

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

528 Mineola Ave., Carle Place, NY 11514

Laboratory ID: **102344**

Issue Date: 03/31/2016

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air analysis is not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 08/15/1999

Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description <i>(for internal methods only)</i>
Paint		EPA SW-846 3050B	
		EPA SW-846-7000B	
Soil		EPA SW-846 3050B	
		EPA SW-846-7000B	
Settled Dust by Wipe		EPA SW-846 3050B	
		EPA SW-846-7000B	
Airborne Dust		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

528 Mineola Ave., Carle Place, NY 11514

Laboratory ID: **102344**

Issue Date: 03/31/2016

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 05/01/2015

EMLAP Category	Field of Testing (FoT)	Method	Method Description <i>(for internal methods only)</i>
Fungal	Air - Direct Examination	05-TP-003.7	Standard Operating Procedure for the Analysis of Airborne Fungal Spores, Hyphal Fragments, Pollen, Insect Fragments, Skin Fragments and Fibrous Particulate by Optical Microscopy of Spore Trap Samples
	Bulk - Direct Examination	M041 - Direct Examination	Standard Operating Procedure for the Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, Pollen, Insect Fragments, and Fibrous Particulate from Surface Samples
	Surface - Direct Examination	M041 - Direct Examination	Standard Operating Procedure for the Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, Pollen, Insect Fragments, and Fibrous Particulate from Surface Samples

A complete listing of currently accredited Environmental Microbiology laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS NY
PHOTODOCUMENTATION LOG**



Photograph 1: Typical Roofing System for Roofs A, B & C – Tar on Concrete, Roofing Felt Paper, Roofing Rubber Membrane w/ Glue & Tar on Roofing Membrane.



Photograph 2: Typical Roofing System for Roof G & Café Roof – Gypsum Planking on Metal Deck, Roofing Felt Paper, Brown Insulation, Roofing Rubber Membrane w/ Glue & Tar on Roofing Membrane.

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS NY
PHOTODOCUMENTATION LOG**



Photograph 3: Inside Electrical Room – Materials found inside the Electrical Room which may be affected by SOW were Non-ACM sheetrock, joint compound, fittings insulation, wrap around fiberglass pipe, cinderblock and 1'x1' pinhole ceiling tiles with mastic.

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS NY
PHOTODOCUMENTATION LOG**



Metal Panel (non-suspect) with assoc.
Exterior Caulking (assumed ACM).

Concrete (non-suspect)

Limestone Slab (non-suspect),
Weatherproofing Material behind slab
(assumed ACM)

Photograph 4: Exterior façade outside electrical room.



April 6, 2017

Mr. Frank Stefanelli
Director of Facilities
White Plains Public Schools
580 North Street
White Plains, NY 10605

Subject: Letter Report for Limited Asbestos Survey Services in Conjunction with the Steam Tunnel Project at the White Plains High School, 550 North Street, White Plains, NY

Dear Mr. Stefanelli:

Louis Berger (Berger) has completed a limited asbestos materials survey at the White Plains High School specifically in the steam tunnels. The limited asbestos survey was conducted on March 29 through 30, 2017 by Marvin Luccioni, a NYS DOL Licensed Asbestos Inspector (Cert# 03-11021). The limited asbestos survey included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) for the upcoming steam tunnel project. Berger inspected the following suspect materials in order to address specific concerns and suspect materials to be impacted by the current scope of work (SOW).

Homogeneous Groups	Location(s)	Material Description	No. of Samples	Results	Quantity
White Plains High School 550 North Street, White Plains, NY					
01	Bldg. A Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
02	Bldg. A Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	NAD	---
03	Bldg. A Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---
04	Bldg. A Steam Tunnels	Cloth Fabric over FG Pipe Ins. (Beige)	3	NAD	---
05	Bldg. A Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
06	Bldg. B Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	33.30% Chrysotile	25 LF
07	Bldg. B Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	16.00% Chrysotile	50 SF
08	Bldg. B Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---



09	Bldg. B Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
10	Bldg. C Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	18.20% Chrysotile	35 LF
11	Bldg. C Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	28.60% Chrysotile	45 SF
12	Bldg. C Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	<1.00% Chrysotile	---
13	Bldg. C Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
14	Bldg. D Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
15	Bldg. D Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	28.60% Chrysotile	55 SF
16	Bldg. D Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---
17	Bldg. D Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
18	Bldg. E Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	27.30% Chrysotile	25 LF
19	Bldg. E Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	22.20% Chrysotile	55 SF
20	Bldg. E Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---
21	Bldg. E Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
22	Bldg. E Steam Tunnels	Paper (Pipe) Ins. Debris on Ground (White)	3	NAD	---
23	Bldg. E Steam Tunnels	Cementitious Material on Ground (Gray)	2	NAD	---
24	Bldg. F Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
25	Bldg. F Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	<1.00% Chrysotile	---
26	Bldg. F Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
27	Bldg. F Pool Mechanical Room (Associated with AHU-1)	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
28	Bldg. F Pool Mechanical Room (Associated with AHU-1)	Vibration Cloth (Black)	2	NAD	---



29	Bldg. F Pool Mechanical Room (Associated with AHU-1)	Cloth Fabric to FG Duct Work Ins. (Beige)	2	NAD	---
30	Bldg. F Pool Mechanical Room (Associated with Abandoned AHU)	Vibration Cloth (Black)	2	NAD	---
31	Penthouse Mechanical Room E219A	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
32	Penthouse Mechanical Room E219A	Vapor Barrier Material on FG Pipe Ins. (Black)	3	<1.00% Chrysotile	---
33	Penthouse Mechanical Room E219A	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
34	Penthouse Mechanical Room E219A	Ceiling Plaster, Gray Only	3	NAD	---
35	Penthouse Mechanical Room E219A	Cloth Fabric to Ductwork FG Ins. (Beige)	2	NAD	---
36	Penthouse Mechanical Room E219A	Gaskets (Green)	2	NAD	---

NAD = No Asbestos Detected

Notes:

1. Quantities are estimations and should be confirmed by the contractor during the pre-abatement walkthrough.
2. Steam tunnels which have standing water must be pumped out and filtered using a filtration system by the contractor which then should be treated as contaminated ACM.

It is our hope that the information provided in this letter has met the project requirements. Thank you for the opportunity to provide you and your staff with our continued services. Please contact me at 212-612-7938 if you have any questions or require any additional information.

Sincerely,

Louis Berger

Marvin Luccioni

Senior Environmental Specialist, Emergency Management & IH Services



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: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Attention: Louis Berger U.S., Inc
48 Wall St.
New York, NY 10005
Phone: (212) 612-7900
Fax:
Received Date: 03/31/2017 7:40 PM
Analysis Date: 04/02/2017 - 04/03/2017
Collected Date: 03/29/2017
Project: 2011353.061/ W.P.S.D./ WHITE PLANS H.S @ 550 NORTH ST., WHITE PLAINS, NY/ STEAM TUNNELS

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 01 031708607-0001			Description BLDG. A - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Tan	45.00% Min. Wool	12.00% Gypsum 43.00% Non-fibrous (other)	None Detected
No Vermiculite 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 031708607-0002			Description BLDG. A - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray	65.00% Min. Wool	35.00% Non-fibrous (other)	None Detected
No Vermiculite 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 031708607-0003			Description BLDG. A - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/03/2017	Tan	55.00% Min. Wool	25.00% Gypsum 20.00% Non-fibrous (other)	None Detected
No Vermiculite 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 031708607-0004			Description BLDG. A - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Tan	45.00% Min. Wool	15.00% Gypsum 40.00% Non-fibrous (other)	None Detected
No Vermiculite 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: 04/03/2017 19:08:19



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

EMSL Order: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 05 <i>031708607-0005</i>			Description BLDG. A - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Tan	45.00% Min. Wool	45.00% Gypsum 10.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 06 <i>031708607-0006</i>			Description BLDG. A - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/03/2017	Tan	55.00% Min. Wool	25.00% Gypsum 20.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 07 <i>031708607-0007</i>			Description BLDG. A - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
			Homogeneity Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Black		100.00% Other	None Detected
Sample ID 08 <i>031708607-0008</i>			Description BLDG. A - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
			Homogeneity Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Black		100.00% Other	None Detected
Sample ID 09 <i>031708607-0009</i>			Description BLDG. A - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Black		100.00% Other	None Detected
Sample ID 10 <i>031708607-0010</i>			Description BLDG. A - STEAM TUNNELS - CLOTH FABRIC OVER FG PIPE INS., BEIGE		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Brown	85.00% Cellulose	15.00% Non-fibrous (other)	None Detected
No Vermiculite 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: 04/03/2017 19:08:19



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>

EMSL Order: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 11 <i>031708607-0011</i>		Description	BLDG. A - STEAM TUNNELS - CLOTH FABRIC OVER FG PIPE INS., BEIGE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Tan	86.00% Cellulose	14.00% 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 12 <i>031708607-0012</i>		Description	BLDG. A - STEAM TUNNELS - CLOTH FABRIC OVER FG PIPE INS., BEIGE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/03/2017	Tan	80.00% Cellulose	20.00% 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 13 <i>031708607-0013</i>		Description	BLDG. A - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Tan		100.00% Other	None Detected
Sample ID 14 <i>031708607-0014</i>		Description	BLDG. A - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Tan		100.00% Other	None Detected
Sample ID 15 <i>031708607-0015</i>		Description	BLDG. B - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Gray	None	15.00% Ca Carbonate 51.70% Non-fibrous (other)	33.30% Chrysotile
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 16 <i>031708607-0016</i>		Description	BLDG. B - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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

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EMSL Order: 031708607

Customer ID: LBAP78

Customer PO:

Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 17 031708607-0017		Description	BLDG. B - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity			
PLM NYS 198.1 Friable	04/02/2017				Positive Stop (Not Analyzed)
No Vermiculite 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 031708607-0018		Description	BLDG. B - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray	25.00% Cellulose	59.00% Non-fibrous (other)	16.00% Chrysotile
No Vermiculite 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 031708607-0019		Description	BLDG. B - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity			
PLM NYS 198.1 Friable	04/02/2017				Positive Stop (Not Analyzed)
No Vermiculite 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 031708607-0020		Description	BLDG. B - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity			
PLM NYS 198.1 Friable	04/02/2017				Positive Stop (Not Analyzed)
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 21 031708607-0021		Description	BLDG. B - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Brown/ Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Brown/ Gray		100.00% Other	None Detected
Sample ID 22 031708607-0022		Description	BLDG. B - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Brown/ Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Brown/ Gray		100.00% Other	None Detected

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EMSL Order: 031708607

Customer ID: LBAP78

Customer PO:

Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 23 031708607-0023		Description	BLDG. B - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Brown/ Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Brown/ Gray		100.00% Other	None Detected
Sample ID 24 031708607-0024		Description	BLDG. B - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Tan		100.00% Other	None Detected
Sample ID 25 031708607-0025		Description	BLDG. B - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Tan		100.00% Other	None Detected
Sample ID 26 031708607-0026		Description	BLDG. C - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Tan	10.00% Cellulose	30.00% Gypsum 41.80% Non-fibrous (other)	18.20% Chrysotile
			No Vermiculite 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 031708607-0027		Description	BLDG. C - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
		Homogeneity			
PLM NYS 198.1 Friable	04/02/2017				Positive Stop (Not Analyzed)
			No Vermiculite 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 031708607-0028		Description	BLDG. C - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
		Homogeneity			
PLM NYS 198.1 Friable	04/02/2017				Positive Stop (Not Analyzed)
			No Vermiculite 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: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		
			Fibrous	Non-Fibrous	Asbestos
Sample ID 29 031708607-0029		Description	BLDG. C - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Brown	None	71.40% Non-fibrous (other)	28.60% Chrysotile
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 30 031708607-0030		Description	BLDG. C - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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 31 031708607-0031		Description	BLDG. C - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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 32 031708607-0032		Description	BLDG. C - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Tan		100.00% Other	None Detected
Sample ID 33 031708607-0033		Description	BLDG. C - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Black	None	100.00% Other	<1.00% Chrysotile
Sample ID 34 031708607-0034		Description	BLDG. C - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Black		100.00% Other	None Detected

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EMSL Order: 031708607

Customer ID: LBAP78

Customer PO:

Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 35 031708607-0035			Description BLDG. C - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Yellow		100.00% Other	None Detected
Sample ID 36 031708607-0036			Description BLDG. C - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Yellow		100.00% Other	None Detected
Sample ID 37 031708607-0037			Description BLDG. D - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray	60.00% Min. Wool	10.00% Gypsum 30.00% Non-fibrous (other)	None Detected
			No Vermiculite Detected.		
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 38 031708607-0038			Description BLDG. D - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray	60.00% Min. Wool	12.00% Gypsum 28.00% Non-fibrous (other)	None Detected
			No Vermiculite Detected.		
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 39 031708607-0039			Description BLDG. D - STEAM TUNNELS - MUDDER JOINTS TO FG PIPE INS., GRAY		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/03/2017	Gray	45.00% Min. Wool	25.00% Gypsum 30.00% Non-fibrous (other)	None Detected
			No Vermiculite Detected.		
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 40 031708607-0040			Description BLDG. D - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY/BROWN		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray	4.00% Cellulose 40.00% Min. Wool	27.40% Non-fibrous (other)	28.60% Chrysotile
			No Vermiculite 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: 031708607

Customer ID: LBAP78

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Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 41 <i>031708607-0041</i>		Description	BLDG. D - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY/BROWN		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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 42 <i>031708607-0042</i>		Description	BLDG. D - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY/BROWN		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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 43 <i>031708607-0043</i>		Description	BLDG. D - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray		100.00% Other	None Detected
Sample ID 44 <i>031708607-0044</i>		Description	BLDG. D - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Tan		100.00% Other	None Detected
Sample ID 45 <i>031708607-0045</i>		Description	BLDG. D - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Tan		100.00% Other	None Detected
Sample ID 46 <i>031708607-0046</i>		Description	BLDG. D - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Tan		100.00% Other	None Detected

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EMSL Order: 031708607

Customer ID: LBAP78

Customer PO:

Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 47 <i>031708607-0047</i>		Description	BLDG. D - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Tan		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Tan		100.00% Other	None Detected
Sample ID 48 <i>031708607-0048</i>		Description	BLDG. E - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Gray	None	72.70% Non-fibrous (other)	27.30% Chrysotile
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 49 <i>031708607-0049</i>		Description	BLDG. E - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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 50 <i>031708607-0050</i>		Description	BLDG. E - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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 51 <i>031708607-0051</i>		Description	BLDG. E - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Brown	30.00% Cellulose	47.80% Non-fibrous (other)	22.20% Chrysotile
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 52 <i>031708607-0052</i>		Description	BLDG. E - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity			
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017				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

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EMSL Order: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 53 <i>031708607-0053</i>		Description	BLDG. E - STEAM TUNNELS - DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY		
		Homogeneity			
PLM NYS 198.1 Friable	04/02/2017				Positive Stop (Not Analyzed)
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 54 <i>031708607-0054</i>		Description	BLDG. E - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE, BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Black		100.00% Other	None Detected
Sample ID 55 <i>031708607-0055</i>		Description	BLDG. E - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE, BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Black		100.00% Other	None Detected
Sample ID 56 <i>031708607-0056</i>		Description	BLDG. E - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE, BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Brown/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Brown/ Black		100.00% Other	None Detected
Sample ID 57 <i>031708607-0057</i>		Description	BLDG. E - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Yellow		100.00% Other	None Detected
Sample ID 58 <i>031708607-0058</i>		Description	BLDG. E - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Yellow		100.00% Other	None Detected

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EMSL Order: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 59 <i>031708607-0059</i>		Description	BLDG. E - STEAM TUNNELS - PAPER INS. DEBRIS ON GROUND, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Tan	80.00% Cellulose	20.00% 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 60 <i>031708607-0060</i>		Description	BLDG. E - STEAM TUNNELS - PAPER INS. DEBRIS ON GROUND, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Tan	70.00% Cellulose	30.00% 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 61 <i>031708607-0061</i>		Description	BLDG. E - STEAM TUNNELS - PAPER INS. DEBRIS ON GROUND, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/03/2017	White	90.00% Cellulose	10.00% 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 62 <i>031708607-0062</i>		Description	BLDG. E - STEAM TUNNELS - CEMENTITIOUS MATERIAL ON GROUND, GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Gray/ Tan		40.00% Non-fibrous (other) 60.00% 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 63 <i>031708607-0063</i>		Description	BLDG. E - STEAM TUNNELS - CEMENTITIOUS MATERIAL ON GROUND, GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/03/2017	Gray		46.00% Non-fibrous (other) 54.00% 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: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 64 <i>031708607-0064</i>		Description	BLDG. F - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray	45.00% Min. Wool	20.00% Gypsum 35.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 65 <i>031708607-0065</i>		Description	BLDG. F - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray/ Tan	40.00% Min. Wool	32.00% Gypsum 28.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 66 <i>031708607-0066</i>		Description	BLDG. F - STEAM TUNNELS - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/03/2017	Gray/ Tan	55.00% Min. Wool	25.00% Gypsum 20.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 67 <i>031708607-0067</i>		Description	BLDG. F - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE, BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Tan/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Tan/ Black		100.00% Other	None Detected
Sample ID 68 <i>031708607-0068</i>		Description	BLDG. F - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE, BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Black	None	100.00% Other	<1.00% Chrysotile
Sample ID 69 <i>031708607-0069</i>		Description	BLDG. F - STEAM TUNNELS - VAPOR BARRIER MATERIAL ON FG PIPE, BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Brown/ Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Brown/ Black	None	100.00% Other	<1.00% Chrysotile

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EMSL Order: 031708607

Customer ID: LBAP78

Customer PO:

Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 70 <i>031708607-0070</i>		Description	BLDG. F - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Brown/ White		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Brown/ White		100.00% Other	None Detected
Sample ID 71 <i>031708607-0071</i>		Description	BLDG. F - STEAM TUNNELS - SEALANT TO FG PIPE INS. SEAMS, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ White		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ White		100.00% Other	None Detected
Sample ID 72 <i>031708607-0072</i>		Description	BLDG. F - POOL MECH RM. - MUDDED JOINTS TO FG. PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Tan	40.00% Min. Wool	35.00% Gypsum 25.00% Non-fibrous (other)	None Detected
		No Vermiculite Detected.			
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 73 <i>031708607-0073</i>		Description	BLDG. F - POOL MECH RM. - MUDDED JOINTS TO FG. PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Tan	35.00% Min. Wool	42.00% Gypsum 23.00% Non-fibrous (other)	None Detected
		No Vermiculite Detected.			
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 74 <i>031708607-0074</i>		Description	BLDG. F - POOL MECH RM. - MUDDED JOINTS TO FG. PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/03/2017	Tan	45.00% Min. Wool	25.00% Gypsum 30.00% Non-fibrous (other)	None Detected
		No Vermiculite Detected.			
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 75 <i>031708607-0075</i>		Description	BLDG. F - POOL MECH RM. - VIBRATION CLOTH, BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Black		100.00% Other	None Detected

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EMSL Order: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 76 <i>031708607-0076</i>			Description	BLDG. F - POOL MECH RM. - VIBRATION CLOTH, BLACK	
			Homogeneity	Homogeneous	
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Black		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Black		100.00% Other	None Detected
Sample ID 77 <i>031708607-0077</i>			Description	BLDG. F - POOL MECH RM. - CLOTH FABRIC TO FG DUCT WORK INS., BEIGE	
			Homogeneity	Homogeneous	
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Brown	80.00% Cellulose	20.00% 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 78 <i>031708607-0078</i>			Description	BLDG. F - POOL MECH RM. - CLOTH FABRIC TO FG DUCT WORK INS., BEIGE	
			Homogeneity	Homogeneous	
PLM NYS 198.1 Friable No Vermiculite Detected.	04/03/2017	Brown	70.00% Cellulose	30.00% 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 79 <i>031708607-0079</i>			Description	BLDG. F - POOL MECH RM. - VIBRATION CLOTH, BLACK	
			Homogeneity	Homogeneous	
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Brown	95.00% Cellulose	5.00% 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 80 <i>031708607-0080</i>			Description	BLDG. F - POOL MECH RM. - VIBRATION CLOTH, BLACK	
			Homogeneity	Homogeneous	
PLM NYS 198.1 Friable No Vermiculite Detected.	04/03/2017	Brown	45.00% Min. Wool	25.00% Gypsum 30.00% 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 81 <i>031708607-0081</i>			Description	PENTHOUSE MECH RM. E-219A - MUDDER JOINTS TO FG PIPE INS., GRAY	
			Homogeneity	Homogeneous	
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Tan	6.00% Cellulose 50.00% Min. Wool	25.00% Gypsum 19.00% 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 Order: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 82 <i>031708607-0082</i>		Description	PENTHOUSE MECH RM. E-219A - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Tan	35.00% Min. Wool	45.00% Gypsum 20.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 83 <i>031708607-0083</i>		Description	PENTHOUSE MECH RM. E-219A - MUDDERED JOINTS TO FG PIPE INS., GRAY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/03/2017	Tan	43.00% Min. Wool	28.00% Gypsum 29.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 84 <i>031708607-0084</i>		Description	PENTHOUSE MECH RM. E-219A - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Yellow		100.00% Other	None Detected
Sample ID 85 <i>031708607-0085</i>		Description	PENTHOUSE MECH RM. E-219A - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Yellow	None	100.00% Other	<1.00% Chrysotile
Sample ID 86 <i>031708607-0086</i>		Description	PENTHOUSE MECH RM. E-219A - VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Yellow	None	100.00% Other	<1.00% Chrysotile
Sample ID 87 <i>031708607-0087</i>		Description	PENTHOUSE MECH RM. E-219A - SEALANT TO FG PIPE INS., SEAMS, WHITE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Yellow		100.00% Other	None Detected

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EMSL Order: 031708607

Customer ID: LBAP78

Customer PO:

Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 88 <i>031708607-0088</i>		Description	PENTHOUSE MECH RM. E-219A - SEALANT TO FG PIPE INS., SEAMS, WHITE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	04/02/2017	Gray/ Yellow		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	04/03/2017	Gray/ Yellow		100.00% Other	None Detected
Sample ID 89 <i>031708607-0089</i>		Description	PENTHOUSE MECH RM. E-219A - CEILING PLASTER, GRAY ONLY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Gray	None	100.00% Non-fibrous (other) Vermiculite Present	
Surfacing Material containing vermiculite. NYS requires ELAP method 198.8.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 90 <i>031708607-0090</i>		Description	PENTHOUSE MECH RM. E-219A - CEILING PLASTER, GRAY ONLY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Brown/ Gray	None	100.00% Non-fibrous (other) Vermiculite Present	
Surfacing Material containing vermiculite. NYS requires ELAP method 198.8.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 91 <i>031708607-0091</i>		Description	PENTHOUSE MECH RM. E-219A - CEILING PLASTER, GRAY ONLY		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Brown	None	100.00% Non-fibrous (other) Vermiculite Present	
Surfacing Material containing vermiculite. NYS requires ELAP method 198.8.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 92 <i>031708607-0092</i>		Description	PENTHOUSE MECH RM. E-219A - CLOTH FABRIC TO DUCT WORK FG INS., BEIGE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/02/2017	Brown	45.00% Cellulose	55.00% Non-fibrous (other)	None Detected
No Vermiculite Detected.					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 93 <i>031708607-0093</i>		Description	PENTHOUSE MECH RM. E-219A - CLOTH FABRIC TO DUCT WORK FG INS., BEIGE		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	04/03/2017	Brown	54.00% Cellulose	46.00% Non-fibrous (other)	None Detected
No Vermiculite 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: 031708607
Customer ID: LBAP78
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 94 <i>031708607-0094</i>			Description PENTHOUSE MECH RM. E-219A - GASKETS, GREEN		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/02/2017	Green	12.00% Cellulose	88.00% 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 95 <i>031708607-0095</i>			Description PENTHOUSE MECH RM. E-219A - GASKETS, GREEN		
			Homogeneity Homogeneous		
PLM NYS 198.1 Friable No Vermiculite Detected.	04/03/2017	Green	15.00% Cellulose 8.00% Glass	77.00% 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 Order: 031708607
Customer ID: LBAP78
Customer PO:
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: 3/31/2017
Analysis Completed Date: 4/2/2017

Sample Receipt Time: 7:40 PM
Analysis Completed Time: 5:34 PM

Analyst(s):

Daena Charles PLM NYS 198.1 Friable (31)

Kamel Alawawda PLM NYS 198.1 Friable (13)

Krystal Harris PLM NYS 198.6 NOB (37)

Wioletta Bis TEM NYS 198.4 NOB (37)

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 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

Initial Report From: 04/03/2017 19:08:19

031708607

OrderID: 031708607



LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 1 OF 8

LB PROJ 2011353.061

CLIENT: W.P.S.D

LOCATION(S) SURVEYED: STEAM TUNNELS

PROPOSED PROJECT: REPAIR

PROJECT SITE: WHITE PLAINS H.S @ 550 NORTHST., WHITE PLAINS, NY

DATE(S) OF INSPECTION: 03/29-30/17

Project Manager: _____

Inspector(s) M. Luccioni

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____

TURNAROUND TIME:

MLUCCIONI@LOUISBERGER.COM

4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
1	01	MUDDIED JOINTS TO FG PIPE INS., GRAY	BIDG. A - STEAM TUNNELS		
↓	02				
↓	03				
2	04	DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY			
↓	05				
↓	06				
3	07	VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK			
↓	08				
↓	09				
4	10	CLOTH FABRIC OVER FG PIPE INS., BEIGE			
↓	11				
↓	12				

2017 MAR 31 PM 7:40
COLLEGIATE RECEIVED

CHAIN OF CUSTODY

Relinquished by: (print) <u>MARVIN Luccioni</u>	(Sign) <u>[Signature]</u>	03/31/17	1500	AM/PM	Relinquished by: (print) _____	(Sign) _____	/ /	AM/PM
Received by: (print) <u>Karen Hulman</u>	(Sign) <u>[Signature]</u>	03/31/17	7:48	AM/PM	Received by: (print) _____	(Sign) _____	/ /	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

KOH/2/2/1/1

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LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 2 OF 8

LB PROJ 2017353.061

CLIENT: W.P.S.D

LOCATION(S) SURVEYED: STEAM TUNNELS

PROPOSED PROJECT: REPAIR

PROJECT SITE: WHITE PLAINS H.S @ 550 NORTH ST., WHITE PLAINS, NY

DATE(S) OF INSPECTION: 03/29-30/17

Project Manager: _____

Inspector(s) M. LUCCIONI

LOUIS BERGER

TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341

ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____

MLUCCIONI@LOUISBERGER.COM

TURNAROUND TIME:

4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
5	13	SEALANT TO FG PIPE INS. SEAMS, WHITE	BIDG. A - STEAM TUNNELS		
↓	14		↓ ↓		
6	15	MUDDIED JOINTS TO FG PIPE INS, GRAY	BIDG. B - STEAM TUNNELS		
↓	16		↓ ↓		
↓	17		↓ ↓		
7	18	DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY			
↓	19		↓ ↓		
↓	20		↓ ↓		
8	21	VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK			
↓	22		↓ ↓		
↓	23		↓ ↓		
9	24	SEALANT TO FG PIPE INS. SEAMS, WHITE			

2017 MAR 31 PM 7:40
RECEIVED

CHAIN OF CUSTODY

Relinquished by: (print) <u>MARVIN LUCCIONI</u>	(Sign) <u>[Signature]</u>	<u>03/31/17</u>	<u>15:00</u>	AM/PM	Relinquished by: (print) _____	(Sign) _____	_____/____/____	____/____/____	AM/PM
Received by: (print) <u>[Signature]</u>	(Sign) <u>[Signature]</u>	<u>3/31/17</u>	<u>7:40</u>	AM/PM	Received by: (print) _____	(Sign) _____	_____/____/____	____/____/____	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

ML

Order ID: 031708607

Page 2 of 16

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY


LOUIS BERGER
 LB PROJ 2011353.061
 CLIENT: W.P.S.D
 PROJECT SITE: WHITE PLAINS H.S @ 550 NORTH ST., WHITE PLAINS, NY
 Project Manager: _____

LOCATION(S) SURVEYED: STEAM TUNNELS
 PROPOSED PROJECT: REPAIR
 DATE(S) OF INSPECTION: 03/29-30/17
 Inspector(s) M. LUCCIONI

LOUIS BERGER
 TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
 ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____
 MLUCCIONI@LOUISBERGER.COM
 TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
9	25	SEALANT TO PG PIPE INS. SEAMS, WHITE	BIDG. B - STEAM TUNNELS		
10	26	MUDDY JOINTS TO PG PIPE INS., GRAY	BIDG. C - STEAM TUNNELS		
↓	27				
↓	28				
11	29	DEBRIS INSIDE WAW PENETRATIONS & GROUND, GRAY			
↓	30				
↓	31				
12	32	VAPOR BARRIER MATERIAL ON PG PIPE INS., BLACK			
↓	33				
↓	34				
13	35	SEALANT TO PG PIPE INS. SEAMS, WHITE			
↓	36				

2017 MAR 31 PM 7:40
 ALL MATERIALS RECEIVED

CHAIN OF CUSTODY			
Relinquished by: (print) <u>MARVIN LUCCIONI</u>	(Sign) <u>[Signature]</u>	03/31/17 15:00 AM/PM	Relinquished by: (print) _____ (Sign) _____
Received by: (print) <u>Aren Autmark</u>	(Sign) <u>[Signature]</u>	3/31/17 7:49 AM/PM	Received by: (print) _____ (Sign) _____

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

Wylsh



LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 4 OF 8

LB PROJ 2011353.061
CLIENT: W.P.S.D

LOCATION(S) SURVEYED: STEAM TUNNELS

PROPOSED PROJECT: REPAIR

PROJECT SITE: WHITE PLAINS H.S @ 550 NORTH ST., WHITE PLAINS, NY

DATE(S) OF INSPECTION: 03/29-30/17

Project Manager: _____

Inspector(s) M. LUCCIONI

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____

TURNAROUND TIME:

M.LUCCIONI@LOUISBERGER.COM

4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
14	37	MUDDY JOINTS TO FG PIPE INS., GRAY	BIDG. D - STEAM TUNNELS		
↓	38				
↓	39				
15	40	DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY/BROWN			
↓	41				
↓	42				
16	43	VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK			
↓	44				
↓	45				
17	46	SEALANT TO FG PIPE INS. SEAMS, WHITE			
↓	47				
18	48	MUDDY JOINTS TO PG PIPE INS., GRAY	BIDG. E - STEAM TUNNELS		

2017 MAR 31 PM 7:40
RECEIVED

CHAIN OF CUSTODY

Relinquished by: (print) <u>MARVIN LUCCIONI</u>	(Sign) <u>[Signature]</u>	<u>03/31/17</u>	<u>15:00</u> AM/PM	Relinquished by: (print) _____	(Sign) _____	_____/____/____	____/____/____	AM/PM
Received by: (print) <u>Karen Putnam</u>	(Sign) <u>[Signature]</u>	<u>3/31/17</u>	<u>7:40</u> AM/PM	Received by: (print) _____	(Sign) _____	_____/____/____	____/____/____	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

[Handwritten Signature]

Order ID: 031708607

Page 4 of 16



LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 5 OF 8

Order ID: 031708607

LB PROJ 2011353.061
CLIENT: W.P.S.D

LOCATION(S) SURVEYED: STEAM TUNNELS

PROPOSED PROJECT: REPAIR

PROJECT SITE: WHITE PLAINS H.S @ 550 NORTH ST., WHITE PLAINS, NY

DATE(S) OF INSPECTION: 03/29-30/17

Project Manager: _____

Inspector(s) M. Luccioni

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____
M.LUCCIONI@LOUISBERGER.COM

TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
18	49	MUDDY JOINTS TO FG PIPE INS., GRAY	BIDGE - STEAM TUNNELS		
↓	50	↓			
19	51	DEBRIS INSIDE WALL PENETRATIONS & GROUND, GRAY			
↓	52	↓			
↓	53	↓			
20	54	VAPOR BARRIER MATERIAL ON FG PIPE, BLACK			
↓	55	↓			
↓	56	↓			
21	57	SEALANT TO FG PIPE INS. SEAMS, WHITE			
↓	58	↓			
22	59	PAPER INS. DEBRIS ON GROUND, WHITE			
↓	60	↓			

2017 MAR 31 PM 7:40
RECEIVED

CHAIN OF CUSTODY

Relinquished by: (print) <u>MARVIN LUCCIONI</u> (Sign) <u>[Signature]</u>	03/31/17 15:00 AM/PM	Relinquished by: (print) _____ (Sign) _____	/ /	AM/PM	Relinquished by: (print) _____ (Sign) _____	/ /	AM/PM
Received by: (print) <u>Kevin Autman</u> (Sign) <u>[Signature]</u>	3/31/17 7:48 AM/PM	Received by: (print) _____ (Sign) _____	/ /	AM/PM	Received by: (print) _____ (Sign) _____	/ /	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

Luccioni

Page 5 of 16



LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 6 OF 8

Order ID: 031708607

LB PROJ 2011353.061
CLIENT: W.P.S.D

LOCATION(S) SURVEYED: STEAM TUNNELS
PROPOSED PROJECT: REPAIR
DATE(S) OF INSPECTION: 03/29-30/17
Inspector(s) M. Luccioni

PROJECT SITE: WHITE PLAINS H.S @ 550 NORTH ST., WHITE PLAINS, NY
Project Manager: _____

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____
M.LUCCIONI@LOUISBERGER.COM
TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES	
22	61	PAPER INS. DEBRIS ON GROUND, WHITE	Bldg. E - STEAM TUNNELS			
23	62	CEMENTITIOUS MATERIAL ON GROUND, GRAY	↓ ↓			
↓	63	↓				
24	64	MUDDY JOINTS TO FG PIPE INS., GRAY		Bldg. F - STEAM TUNNELS		
↓	65	↓	↓ ↓			
↓	66	↓				
25	67	VAPOR BARRIER MATERIAL ON FG PIPE, BLACK				
↓	68	↓				
↓	69	↓				
26	70	SEALANT TO FG PIPE INS. SEAMS, WHITE	↓ ↓			
↓	71	↓				
27	72	MUDDY JOINTS TO FG PIPE INS., GRAY		- POOL MECH RM.		ASSOC. W/ LAMU-1

CHAIN OF CUSTODY

Relinquished by: (print) <u>MARVIN LUCCIONI</u> (Sign) <u>[Signature]</u>	03/31/17 15:00 AM/PM	Relinquished by: (print) _____ (Sign) _____	AM/PM	Relinquished by: (print) _____ (Sign) _____	AM/PM
Received by: (print) <u>[Signature]</u> (Sign) <u>[Signature]</u>	03/31/17 14:40 AM/PM	Received by: (print) _____ (Sign) _____	AM/PM	Received by: (print) _____ (Sign) _____	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

ll 4/3/17

Page 6 of 16



LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 7 OF 8

Order ID: 031708607

LB PROJ 2011353.061
CLIENT: W.P.S.D

LOCATION(S) SURVEYED: STEAM TUNNELS
PROPOSED PROJECT: REPAIR
DATE(S) OF INSPECTION: 03/29-30/17
Inspector(s) M. LUCCIONI

PROJECT SITE: WHITE PLAINS H.S @ 550 NORTH ST., WHITE PLAINS, NY
Project Manager: _____

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____
MLUCCIONI@LOUISBERGER.COM
TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
27	73	MUDDIED JOINTS TO FG PIPE INS., GRAY	B104.F - POOL MECH Rm.		Assoc. w/ AHU - 1
↓	74	↓	↓		↓
28	75	VIBRATION CLOTH, BLACK			
↓	76	↓	↓		
29	77	CLOTH FABRIC TO FG DUCT WORK INS., BEIGE			
↓	78	↓	↓		
30	79	VIBRATION CLOTH, BLACK			ASSOC. W/ ABANDONED AHU
↓	80	↓	↓		
31	81	MUDDIED JOINTS TO FG PIPE INS., GRAY	PENT HOUSE MECH Rm. E-219A		2017 MAR 30 PM 7:40
↓	82	↓	↓		
↓	83	↓	↓		
32	84	VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK			

CHAIN OF CUSTODY

Relinquished by: (print) <u>MARVIN LUCCIONI</u> (Sign) <u>[Signature]</u>	03/31/17 15:00 AM/PM	Relinquished by: (print) _____ (Sign) _____	/ /	AM/PM	Relinquished by: (print) _____ (Sign) _____	/ /	AM/PM
Received by: (print) <u>Karen Pautrop</u> (Sign) <u>[Signature]</u>	3/31/17 9:48 AM/PM	Received by: (print) _____ (Sign) _____	/ /	AM/PM	Received by: (print) _____ (Sign) _____	/ /	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

03/31/17

Page 7 of 16



LOUIS BERGER

ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY

PAGE 8 OF 8

LB PROJ 2011353.061
CLIENT: W.P.S.D

LOCATION(S) SURVEYED: STEAM TUNNELS

PROPOSED PROJECT: REPAIR

PROJECT SITE: WHITE PLAINS H.S @ 550 NORTH ST., WHITE PLAINS, NY

DATE(S) OF INSPECTION: 03/29-30/17

Project Manager: _____

Inspector(s) M. LUCCIONI

LOUIS BERGER
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street, 16 Floor, New York, NY 10005

RESULTS TO: _____
M.LUCCIONI@LOUISBERGER.COM

TURNAROUND TIME:
 4 HR. 24 HRS. 48 HRS. 72 HRS.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
32	85	VAPOR BARRIER MATERIAL ON FG PIPE INS., BLACK	PENTHOUSE MECH RM. E-219A		
↓	86	↓			
33	87	SEALANT TO FG PIPE INS., SEAMS, WHITE			
↓	88	↓			
34	89	CEILING PLASTER, GRAY ONLY			
↓	90	↓			
↓	91	↓			
35	92	CLOTH FABRIC TO DUCTWORK FG INS., BEIGE			
↓	93	↓			
36	94	GASKETS, GREEN			
↓	95	↓			

2017 MAR 31 PM 7:40
RECEIVED

CHAIN OF CUSTODY

Relinquished by: (print) <u>MARVIN LUCCIONI</u>	(Sign) <u>[Signature]</u>	<u>03/31/17</u>	<u>15:00</u> AM/PM	Relinquished by: (print) _____	(Sign) _____	/ /	AM/PM
Received by: (print) <u>[Signature]</u>	(Sign) _____	<u>3/31/17</u>	<u>7:40</u> AM/PM	Received by: (print) _____	(Sign) _____	/ /	AM/PM

GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

[Signature] 3/31/17

Page 8 of 16

Order ID: 031708607



May 17, 2017

Mr. Frank Stefanelli
Director of Facilities
White Plains Public Schools
580 North Street
White Plains, NY 10605

Subject: Letter Report for Limited Asbestos Survey Services in Conjunction with the Corridor C Locker Project at the White Plains High School, 550 North Street, White Plains, NY

Dear Mr. Stefanelli:

Louis Berger (Berger) has completed a limited asbestos materials survey at the White Plains High School for the Corridor C Lockers project. The limited asbestos survey was conducted on May 2, 2017 by Marvin Luccioni, a NYS DOL Licensed Asbestos Inspector (Cert# 03-11021). The limited asbestos survey included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) for the upcoming Corridor C Lockers project. Berger inspected the following suspect materials in order to address specific concerns and suspect materials to be impacted by the current scope of work (SOW).

Homogeneous Groups	Location(s)	Material Description	No. of Samples	Results	Quantity
White Plains High School 550 North Street, White Plains, NY					
01	Bldg. C – Corridor C Lockers	Mudded Elbows to FG Pipe Insulation, Gray	3	21.10% Chrysotile	20 SF (2 SF per location)
02	Bldg. C – Corridor C Lockers	Canvas over FG Pipe Insulation, Gray	3	NAD	---
03	Bldg. C – Corridor C Lockers	Mastic associated with 4” Brown Cove Base, Brown	2	NAD	---
04	Bldg. C – Corridor C Lockers	4” Brown Cove Base	2	NAD	---
05	Bldg. C – Corridor C Lockers	Particle Board (Above Lockers), Brown	2	NAD	---
06	Custodians Office	Cementitious Panels, Gray	2	21.10% Chrysotile	112 SF

NAD = No Asbestos Detected

Notes:

- Quantities are estimations and should be confirmed by the contractor during the pre-abatement walkthrough.
- Quantities include debris from damaged elbows.



It is our hope that the information provided in this letter has met the project requirements. Thank you for the opportunity to provide you and your staff with our continued services. Please contact me at 212-612-7938 if you have any questions or require any additional information.

Sincerely,

Louis Berger

Marvin Luccioni

Senior Environmental Specialist, Emergency Management & IH Services

Attachments:

1. Company and Personnel Certifications
2. Chain of Custody's and Lab Results
3. Site Photographs

New York State – Department of Labor

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

ASBESTOS HANDLING LICENSE

The Louis Berger Group, Inc.
16th Floor
48 Wall Street

New York, NY 10005

FILE NUMBER: 03-0940
LICENSE NUMBER: 29635
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 01/18/2017
EXPIRATION DATE: 01/31/2018

Duly Authorized Representative – Craig Napolitano:

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

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



Eileen M. Franko, Director
For the Commissioner of Labor

New York State – Department of Labor

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

ASBESTOS HANDLING LICENSE

Louis Berger & Assoc., P.C.
16th Floor
48 Wall Street

New York, NY 10005

FILE NUMBER: 09-46778
LICENSE NUMBER: 46778
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 07/14/2016
EXPIRATION DATE: 07/31/2017

Duly Authorized Representative – Prakash Saha:

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

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



Eileen M. Franko, Director
For the Commissioner of Labor



MARVIN LUCCIONI

C/O LOUIS BERGER., 48 WALL ST 16TH FL
NEW YORK NY 10005

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 or call (518) 457-2735

YOUR NEW CARD





Louis Berger

RB

ASBESTOS SURVEY DATA SHEET / CHAIN OF CUSTODY

PAGE 1 OF 2

OrderID: 061705723

PROJECT NO.: 2011353.061.00

DATE(S) OF INSPECTION: 05/07/17

CLIENT: W.P.S.D.

Project Manager: [REDACTED]

PROJECT SITE: W.P.H.S

Inspector(s): M. UCCIONI

PROJECT ADDRESS: 550 NORTH ST., WHITE PLAINS NY

LOUIS BERGER & ASSOC., P.C.
TELEPHONE NO.: (212) 612-7900 FAX NO.: (212) 363-4341
ADDRESS: 48 Wall Street 16th Floor, New York, NY 10005

RESULTS TO: [REDACTED]

TURNAROUND TIME: 48 hrs

HA	SAMPLE NO.	SAMPLE LOCATION	MATERIAL DESCRIPTION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
1	01	PIP & C - LOCKERS NEAR Rm. C-111 HALLWAY	MUDGED ELBOWS TO F.G. PIPE INS., GRAY		BETHP LOCKERS
↓	02	↓	↓		
↓	03	LOCKERS NEAR Rm. C108 HALLWAY	↓		
2	04	LOCKERS NEAR Rm. C-111 HALLWAY	CANVOS OVER F.G. PIPE INS., GRAY		
↓	05	↓	↓		
↓	06	LOCKERS NEAR Rm. C-108 HALLWAY	↓		
3	07	LOCKERS NEAR Rm. C-111 HALLWAY	MAT'L ASSOC. W/ 4" BROWN COVERAGE, BROWN		
↓	08	LOCKERS NEAR Rm. C-108 HALLWAY	↓		
4	09	LOCKERS NEAR Rm. C-111 HALLWAY	2 1/2" BROWN COVERAGE		
↓	10	LOCKERS NEAR Rm. C-108	↓		
5	11	LOCKERS NEAR Rm. C-111 HALLWAY	PARTICLE BOARD, BROWN		
↓	12	LOCKERS NEAR Rm. C-108	↓		

RECEIVED
EMSL ANALYTICAL, INC.
CARLE PLACE, NY
MAY 28 PM 1:37

CHAIN OF CUSTODY

Relinquished by: (print) <u>M. UCCIONI</u>	(Sign) <u>[Signature]</u>	<u>5/3/17</u>	<u>1335</u> AMPM	Relinquished by: (print)	(Sign)			Relinquished by: (print)	(Sign)		
Received by: (print) <u>[Signature]</u>	(Sign) <u>[Signature]</u>	<u>5/3/17</u>	<u>1337</u> AMPM	Received by: (print)	(Sign)			Received by: (print)	(Sign)		

General Notes: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

Louis Monte De Sen 5/4/17

[Signature]

Page 1 of 2



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com / carleplacelab@emsl.com>

EMSL Order: 061705723
Customer ID: LBAP78
Customer PO: 2011353.061.00
Project ID:

Attention: Marvin Luccioni
Louis Berger U.S., Inc
48 Wall St.
New York, NY 10005

Phone: (718) 730-2741
Fax:
Received Date: 05/03/2017 1:37 PM
Analysis Date: 05/04/2017
Collected Date: 05/02/2017

Project: Z011353.061.00, W.P.S.D, 550 North St, White Plains, NY

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 1-01 <i>061705723-0001</i>		Description	Bldg C-Lockers near Rm C-111 Hallway - Mudded Elbows to F.G. Pipe Ins, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	05/04/2017	Brown/ White/ Black	55.00% Min. Wool	15.00% Ca Carbonate 8.90% Non-fibrous (other)	21.10% Chrysotile
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 1-02 <i>061705723-0002</i>		Description	Bldg C-Lockers near Rm C-111 Hallway - Mudded Elbows to F.G. Pipe Ins, Gray		
		Homogeneity			
PLM NYS 198.1 Friable	05/04/2017				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 1-03 <i>061705723-0003</i>		Description	Bldg C-Lockers near Rm G108 Hallway - Mudded Elbows to F.G. Pipe Ins, Gray		
		Homogeneity			
PLM NYS 198.1 Friable	05/04/2017				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 2-04 <i>061705723-0004</i>		Description	Bldg C-Lockers near Rm C-111 Hallway - Canvas over F.G. Pipe Ins. Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	05/04/2017	Gray/ Tan/ Various	25.00% Cellulose 35.00% Glass 20.00% Min. Wool	15.00% Matrix 5.00% 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 2-05 <i>061705723-0005</i>		Description	Bldg C-Lockers near Rm C-111 Hallway - Canvas over F.G. Pipe Ins. Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	05/04/2017	Gray/ Tan/ Various	30.00% Cellulose 30.00% Glass 15.00% Min. Wool	20.00% Matrix 5.00% 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: 05/05/2017 09:30:25



EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061705723
Customer ID: LBAP78
Customer PO: 2011353.061.00
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 2-06 061705723-0006		Description	Bldg C-Lockers near Rm C-108 Hallway - Canvas over F.G. Pipe Ins. Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	05/04/2017	Gray/ Tan/ Various	25.00% Cellulose 40.00% Glass 15.00% Min. Wool	15.00% Matrix 5.00% 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 3-07 061705723-0007		Description	Bldg C-Lockers near Rm C-111 Hallway - Mastic Assoc. w/4" Brown Cove Base, Brown		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	05/04/2017	Brown	5.60% Wollastonite	94.40% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	05/04/2017	Brown		100.00% Other	None Detected
Sample ID 3-08 061705723-0008		Description	Bldg C-Lockers near Rm C-108 Hallway - Mastic Assoc. w/4" Brown Cove Base, Brown		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	05/04/2017	Brown	11.00% Wollastonite	89.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	05/04/2017	Brown		100.00% Other	None Detected
Sample ID 4-09 061705723-0009		Description	Bldg C-Lockers near Rm C-111 Hallway - 4" Brown Cove Base		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	05/04/2017	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	05/04/2017	Brown		100.00% Other	None Detected
Sample ID 4-10 061705723-0010		Description	Bldg C-Lockers near Rm C-108 - 4" Brown Cove Base		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable					Not Analyzed
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB	05/04/2017	Brown		100.00% Other	Inconclusive: None Detected
TEM NYS 198.4 NOB	05/04/2017	Brown		100.00% Other	None Detected
Sample ID 5-11 061705723-0011		Description	Bldg C-Lockers near Rm C-111 Hallway - Particle Board, Brown		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	05/04/2017	Brown/ Tan/ White	65.00% Cellulose	20.00% Matrix 15.00% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis					
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: 061705723
Customer ID: LBAP78
Customer PO: 2011353.061.00
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 5-12 061705723-0012		Description	Bldg C-Lockers near Rm C-108 - Particle Board, Brown		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	05/04/2017	Brown/ Tan/ White	70.00% Cellulose	25.00% Matrix 5.00% 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 6-13 061705723-0013		Description	Custodians Office - Cementitious Panels, Gray		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	05/04/2017	Gray/ Tan/ White	None	30.00% Ca Carbonate 13.90% Non-fibrous (other) 35.00% Quartz	21.10% Chrysotile
Sample is Transite					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed
Sample ID 6-14 061705723-0014		Description	Custodians Office - Cementitious Panels, Gray		
		Homogeneity			
PLM NYS 198.1 Friable	05/04/2017				Positive Stop (Not Analyzed)
Sample is Transite					
PLM NYS 198.6 VCM					Not Analyzed
PLM NYS 198.6 NOB					Not Analyzed
TEM NYS 198.4 NOB					Not Analyzed

Initial Report From: 05/05/2017 09:30:25



EMSL Analytical, Inc.

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<http://www.EMSL.com> / carleplacelab@emsl.com

EMSL Order: 061705723
Customer ID: LBAP78
Customer PO: 2011353.061.00
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: 5/3/2017
Analysis Completed Date: 5/4/2017

Sample Receipt Time: 1:37 PM
Analysis Completed Time: 4:52 PM

Analyst(s):

Tomas Montes De Oca PLM NYS 198.1 Friable (7)

Tomas Montes De Oca PLM NYS 198.6 NOB (4)

Keith McWilliams TEM NYS 198.4 NOB (4)

Samples reviewed and approved by:

Michelle McGowan, 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 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. Carle Place, NY NYS ELAP 11469

Initial Report From: 05/05/2017 09:30:25



Photo 1: Mudded Elbows behind Corridor C Lockers.

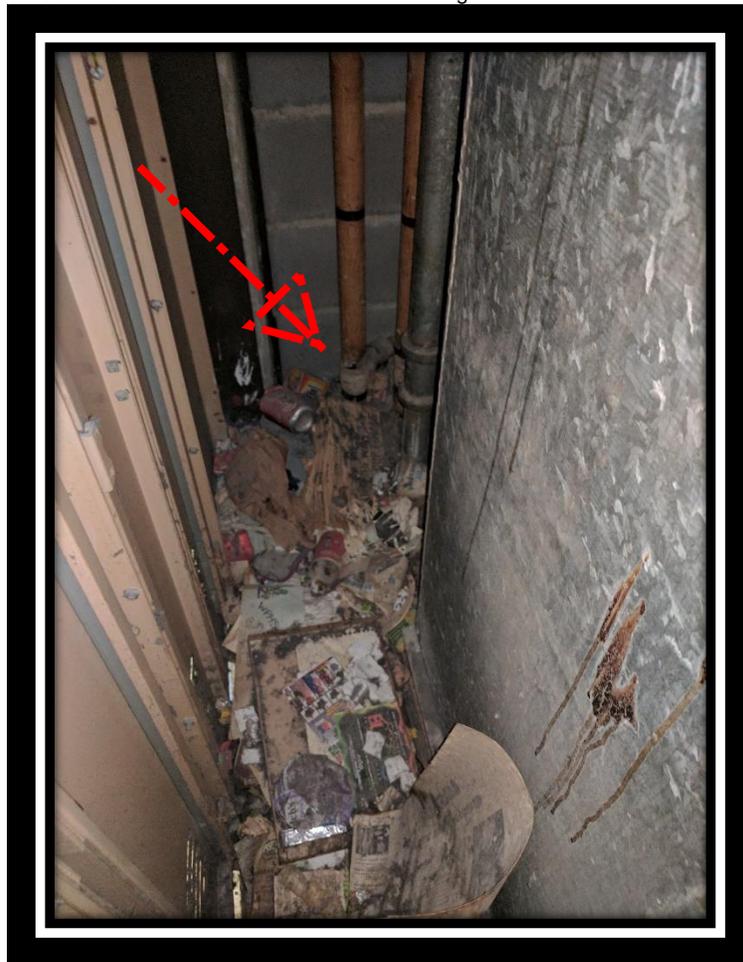


Photo 2: Mudded Elbows behind Corridor C Lockers.

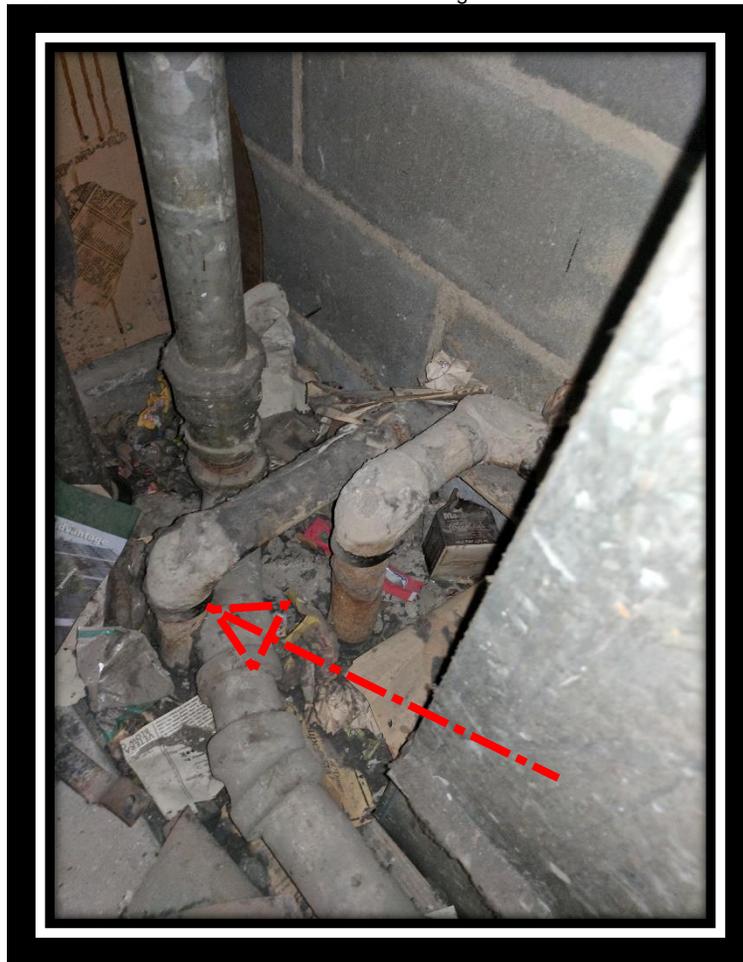


Photo 3: Muddied Elbows behind Corridor C Lockers.

**FINAL REPORT FOR
ASBESTOS INSPECTION SERVICES**

Performed at:

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**



Prepared for:



**508 North Street
White Plains, NY 10605**

Prepared by:



Louis Berger

**565 Taxter Road, 5th Floor
Elmsford, New York 10523**

Tel. (914) 798-3710

Fax (914) 592-1734

**Project No.: 2042261.030
Final Submission Date: February 6, 2018**



Louis Berger

565 Taxter Road, 5th Floor, Elmsford, NY 10523
Tel 914 798 3710 Fax 914 592 1734

www.louisberger.com

February 6, 2018

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10605

**Subject: Final Report of Asbestos Inspection Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger (Berger) has completed a material inspection at White Plains High School located at 550 North Street, White Plains, NY 10605. The inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) associated with the upcoming PA Replacement project at the White Plains High 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,

LOUIS BERGER (LB)

Craig Napolitano, CHMM
Vice President, Emergency Management & IH Services

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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

Appendix E: Company License, Personnel Certifications and Laboratory Accreditations

Appendix F: Photographic Documentation

Appendix G: File Search

1.0 EXECUTIVE SUMMARY

Berger has performed a material inspection for the presence or absence of Asbestos-Containing Materials (ACM) at the White Plains High School located at 550 North Street, White Plains, NY 10605. The intent of this inspection was to screen for Asbestos-Containing Materials (ACM) that may be impacted during the upcoming PA Replacement project at the White Plains High School.

Marvin Luccioni of LB performed this inspection on February 1st, 2018. Mr. Luccioni is licensed as a New York State Department of Labor (NYSDOL) Asbestos Inspector (Cert# 03-11021). The results of the visual inspection and bulk sample analysis determined that the following suspect ACM materials may be impacted by the upcoming PA Replacement project at the White Plains High School:

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected on 02/02/18 by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**

Analytical results of the bulk samples collected in **previous survey report** dated 03/29-30/17 by Louis Berger indicate that the following materials **contain asbestos** (greater than 1-percent);

- **Mudded Joints to FG Pipe Ins., Gray (Steam Tunnels to Bldg. B, C, D & E)¹**
- **Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground, Gray (Steam Tunnels to Bldg. B, C, D & E)¹**

Analytical results of the bulk samples collected in **previous survey report** dated 09/11/13 by Louis Berger indicate that the following materials **contain asbestos** (greater than 1-percent);

- **9"x9" Floor Tile (Auditorium)¹**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)¹**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)¹**

As per 2016 AHERA, the following materials **contain asbestos** (greater than 1-percent);

- **9"x9" Floor Tile (Throughout)¹**
- **Transit Soffit (Janitors Closet)¹**

Note: 1. ACM will not be disturbed as part of the PA Replacement project.

Analytical results of the bulk samples collected on 02/02/18 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Glazed Brick Mortar, Gray
- Joint Compound, White

- Gypsum Board, White
- Plaster, Brown Coat

Analytical results of the bulk samples collected and/or visual examination on 10/13 & 27/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Screed, Gray (Roof C)
- Bottom Membrane, Black (Roof C)
- Felt Paper below Foam, Black (Roof C)
- Felt Paper on top of Foam, Black (Roof C)
- Perlite Insulation, Brown (Roof C)
- Top Membrane, Black (Roof C)
- Pitch Pocket Tar, Black (Roof C)
- Hatch Flashing, Black (Roof C)
- Screed, Gray (Roof A)
- Felt Paper below Foam, Black (Roof A)
- Felt Paper on top of Foam, Black (Roof A)
- Top Membrane, Black (Roof A)
- Screed, Gray (Roofs B, D, E & F)
- Felt Paper on Bottom of Foam, Black (Roofs B, D, E & F)
- Felt Paper on top of Foam, Black (Roofs B, D, E & F)
- Top Insulation Membrane, Black (Roofs B, D, E & F)
- Felt Paper on top of Roofing Membrane, Black (Roofs B, D, E & F)
- Cap Flashing Caulking, Gray (Roofs B, D, E & F)
- Perimeter Base Flashing, Black (Roofs B, D, E & F)
- Drain Flashing, Black (Roofs B, D, E & F)
- Tar on Mechanical Units, Black (Roofs B, D, E & F)
- Tar assoc. with Pitch Pockets at Ladder, Black (Roofs B, D, E & F)
- Mechanical Unit Flashing, Black (Roofs B, D, E & F)
- Hatch Flashing, Black (Roofs B, D, E & F)
- Canvas to FG to Drain Bowls, White (Throughout Interior)
- Cementitious Ceiling, White (Throughout Interior)
- Tectum Ceiling (Throughout Interior)

Analytical results of the bulk samples collected and/or visual examination on LB previous survey report dated 09/11/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Interior Brick Mortar, Grey
- Cinderblock Mortar, Grey
- 1'x1' Pinhole Ceiling Tiles, White
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings Insulation assoc. with Fiberglass Pipe Insulation, Grey
- Wrap around Fiberglass Pipe Insulation, Brown

- Sheetrock, White
- Joint Compound assoc. with Sheetrock, White
- Caulking at Metal Exhaust Vent Edge, Grey
- Roof Decking (Gym Mech. Room Roof)
- Paper to Foam Insulation (Gym & Gym Mech. Roofs)
- Fiberboard Insulation (Gym & Gym Mech. Roofs)
- Fabric Barrier (Gym & Gym Mech. Roofs)
- Tar on Concrete Deck (Gym Roof)

Analytical results of the bulk samples collected in **previous survey report** dated 03/29-30/17 by Louis Berger indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Mudded Joints to FG Pipe Ins., Gray (Steam Tunnels to Bldg. A & F)
- Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground), Gray (Steam Tunnels to Bldg. A & F)
- Vapor Barrier Material on FG Pipe Ins., Black (Steam Tunnels to Bldg. A, B, C, D, E & F)
- Cloth Fabric over FG Pipe Ins., Beige (Steam Tunnels to Bldg. A)
- Sealant to FG Pipe Ins. Seams, White (Steam Tunnels to Bldg. A, B, C, D, E & F & Mech Rooms)
- Paper (Pipe) Ins. Debris on Ground, White (Steam Tunnels to Bldg. F)
- Cementitious Material on Ground, Gray (Steam Tunnels to Bldg. F)
- Vibration Cloth, Black (Bldg. F Mech Room)
- Cloth Fabric to FG Duct Work Ins., Beige (Bldg. F Mech Room)
- Ceiling Plaster, Gray
- Gaskets, Green

Analytical results of the bulk samples collected in **previous survey report** dated 09/11/13 by Louis Berger indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Baseboard Glue, Brown
- Baseboard Molding, Brown
- Mastic assoc. with 9"x9" Floor Tiles, Black
- 2'x4' Ceiling Tiles, Gray
- Wall Ceramic Tile Grout, White
- Floor Ceramic Tile Grout, Brown
- Glazing at Entrance Aluminum Framing/Panels, White
- Interior Brick Mortar, Gray
- Cinderblock Mortar, Gray
- 1'x1' Pinhole Ceiling Tiles, White
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Glazing at Celestory Glass Panels bet. Rooms & Hallways, Gray
- Fitting Insulation assoc. with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown

- Sheetrock Walls/Ceiling, White
- Joint Compound assoc. with Sheetrock Walls, White
- Caulking at Metal Exhaust Vent Edges, Gray
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

The following materials as per 2017 AHERA, **did not contain asbestos** based on previous reporting and/or sampling

- 1'x1' Pinhole Pattern Ceiling Tile, White (Throughout Interior)
- 2'x4' Pinhole Ceiling Tiles, White (Throughout Interior)
- 1'x1' Gouged Ceiling Tiles, White (Throughout Interior)
- 2'x4' Small Pinhole Ceiling Tiles, White (Throughout Interior)
- 1'x1' Fissure Ceiling Tiles, White (Throughout Interior)
- 2'x4' (2'x2' Design) Ceiling Tiles, White (Throughout Interior)
- 2'x2' Small Pinhole Ceiling Tiles, White (Throughout Interior)
- Interior Brick Mortar, Gray (Throughout Interior)
- Cinderblock Mortar, Gray (Throughout Interior)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings assoc. with Fiberglass Pipe Insulation, Gray (Throughout Interior)
- Wrap around Fiberglass Pipe Insulation, Brown (Throughout Interior)
- Sheetrock, White (Throughout Interior)
- Joint Compound assoc. with Sheetrock, White (Throughout Interior)

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 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 25th, 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 25th 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 25th, 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 528 Mineola Avenue, Carle Place, NY 11514 and 307 W. 38th St., NY 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. 102581)

3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT

The areas inspected for ACM materials that may be impacted during the upcoming PA Replacement project at the White Plains High School include:

- Interior (Through Bldgs. A, B, C, D, E, F & G)

A. ASBESTOS-CONTAINING MATERIAL

Materials examined during the Berger inspection on 02/02/18 included:

- Glazed Brick Mortar, Gray
- Joint Compound, White
- Gypsum Board, White
- Plaster, Brown Coat

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected on 02/02/18 by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**

Analytical results of the bulk samples collected in **previous survey report** dated 03/29-30/17 by Louis Berger indicate that the following materials **contain asbestos** (greater than 1-percent);

- **Mudded Joints to FG Pipe Ins., Gray (Steam Tunnels to Bldg. B, C, D & E)¹**
- **Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground, Gray (Steam Tunnels to Bldg. B, C, D & E)¹**

Analytical results of the bulk samples collected in **previous survey report** dated 09/11/13 by Louis Berger indicate that the following materials **contain asbestos** (greater than 1-percent);

- **9"x9" Floor Tile (Auditorium)¹**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)¹**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)¹**

As per 2016 AHERA, the following materials **contain asbestos** (greater than 1-percent);

- **9"x9" Floor Tile (Throughout)¹**
- **Transit Soffit (Janitors Closet)¹**

Note: 1. ACM will not be disturbed as part of the PA Replacement project.

Analytical results of the bulk samples collected on 02/02/18 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Glazed Brick Mortar, Gray
- Joint Compound, White
- Gypsum Board, White
- Plaster, Brown Coat

Analytical results of the bulk samples collected and/or visual examination on 10/13 & 27/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Screed, Gray (Roof C)
- Bottom Membrane, Black (Roof C)
- Felt Paper below Foam, Black (Roof C)
- Felt Paper on top of Foam, Black (Roof C)
- Perlite Insulation, Brown (Roof C)
- Top Membrane, Black (Roof C)
- Pitch Pocket Tar, Black (Roof C)
- Hatch Flashing, Black (Roof C)
- Screed, Gray (Roof A)
- Felt Paper below Foam, Black (Roof A)
- Felt Paper on top of Foam, Black (Roof A)
- Top Membrane, Black (Roof A)
- Screed, Gray (Roofs B, D, E & F)
- Felt Paper on Bottom of Foam, Black (Roofs B, D, E & F)
- Felt Paper on top of Foam, Black (Roofs B, D, E & F)
- Top Insulation Membrane, Black (Roofs B, D, E & F)
- Felt Paper on top of Roofing Membrane, Black (Roofs B, D, E & F)
- Cap Flashing Caulking, Gray (Roofs B, D, E & F)
- Perimeter Base Flashing, Black (Roofs B, D, E & F)
- Drain Flashing, Black (Roofs B, D, E & F)
- Tar on Mechanical Units, Black (Roofs B, D, E & F)
- Tar assoc. with Pitch Pockets at Ladder, Black (Roofs B, D, E & F)
- Mechanical Unit Flashing, Black (Roofs B, D, E & F)
- Hatch Flashing, Black (Roofs B, D, E & F)
- Canvas to FG to Drain Bowls, White (Throughout Interior)
- Cementitious Ceiling, White (Throughout Interior)
- Tectum Ceiling (Throughout Interior)

Analytical results of the bulk samples collected and/or visual examination on LB previous survey report dated 09/11/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Interior Brick Mortar, Grey
- Cinderblock Mortar, Grey
- 1'x1' Pinhole Ceiling Tiles, White

- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings Insulation assoc. with Fiberglass Pipe Insulation, Grey
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White
- Joint Compound assoc. with Sheetrock, White
- Caulking at Metal Exhaust Vent Edge, Grey
- Roof Decking (Gym Mech. Room Roof)
- Paper to Foam Insulation (Gym & Gym Mech. Roofs)
- Fiberboard Insulation (Gym & Gym Mech. Roofs)
- Fabric Barrier (Gym & Gym Mech. Roofs)
- Tar on Concrete Deck (Gym Roof)

Analytical results of the bulk samples collected in **previous survey report** dated 03/29-30/17 by Louis Berger indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Mudded Joints to FG Pipe Ins., Gray (Steam Tunnels to Bldg. A & F)
- Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground), Gray (Steam Tunnels to Bldg. A & F)
- Vapor Barrier Material on FG Pipe Ins., Black (Steam Tunnels to Bldg. A, B, C, D, E & F)
- Cloth Fabric over FG Pipe Ins., Beige (Steam Tunnels to Bldg. A)
- Sealant to FG Pipe Ins. Seams, White (Steam Tunnels to Bldg. A, B, C, D, E & F & Mech Rooms)
- Paper (Pipe) Ins. Debris on Ground, White (Steam Tunnels to Bldg. F)
- Cementitious Material on Ground, Gray (Steam Tunnels to Bldg. F)
- Vibration Cloth, Black (Bldg. F Mech Room)
- Cloth Fabric to FG Duct Work Ins., Beige (Bldg. F Mech Room)
- Ceiling Plaster, Gray Only
- Gaskets, Green

Analytical results of the bulk samples collected in **previous survey report** dated 09/11/13 by Louis Berger indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Baseboard Glue, Brown
- Baseboard Molding, Brown
- Mastic assoc. with 9"x9" Floor Tiles, Black
- 2'x4' Ceiling Tiles, Gray
- Wall Ceramic Tile Grout, White
- Floor Ceramic Tile Grout, Brown
- Glazing at Entrance Aluminum Framing/Panels, White
- Interior Brick Mortar, Gray
- Cinderblock Mortar, Gray
- 1'x1' Pinhole Ceiling Tiles, White
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown

- Glazing at Celestory Glass Panels bet. Rooms & Hallways, Gray
- Fitting Insulation assoc. with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock Walls/Ceiling, White
- Joint Compound assoc. with Sheetrock Walls, White
- Caulking at Metal Exhaust Vent Edges, Gray
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

The following materials as per 2017 AHERA, **did not contain asbestos** based on previous reporting and/or sampling

- 1'x1' Pinhole Pattern Ceiling Tile, White (Throughout Interior)
- 2'x4' Pinhole Ceiling Tiles, White (Throughout Interior)
- 1'x1' Gouged Ceiling Tiles, White (Throughout Interior)
- 2'x4' Small Pinhole Ceiling Tiles, White (Throughout Interior)
- 1'x1' Fissure Ceiling Tiles, White (Throughout Interior)
- 2'x4' (2'x2' Design) Ceiling Tiles, White (Throughout Interior)
- 2'x2' Small Pinhole Ceiling Tiles, White (Throughout Interior)
- Interior Brick Mortar, Gray (Throughout Interior)
- Cinderblock Mortar, Gray (Throughout Interior)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings assoc. with Fiberglass Pipe Insulation, Gray (Throughout Interior)
- Wrap around Fiberglass Pipe Insulation, Brown (Throughout Interior)
- Sheetrock, White (Throughout Interior)
- Joint Compound assoc. with Sheetrock, White (Throughout Interior)

4.0 INSPECTION RESULTS

A. ASBESTOS-CONTAINING MATERIAL

The asbestos inspection involved a thorough visual examination of all areas that may be impacted during the upcoming PA Replacement project at the White Plains High School. The following suspect materials were sampled and analyzed for asbestos content by Berger:

4.1 Table 4.1 – Suspect Materials Inspected

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
Samples collected during Berger’s latest inspection on 02/02/18			
01	Bldg. G	Glazed Brick Mortar, Gray	NAD
02	Bldg. E & G	Joint Compound, White	NAD
03	Bldg. E & G	Gypsum Board, White	NAD
04	Bldg. A	Plaster, Brown Coat	NAD

Bold = Positive for ACM NAD = No Asbestos Detected

4.2 CONDITION AND FRIABILITY ASSESSMENT TABLE

For each inspection conducted, the inspector classifies 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
Asbestos Containing Materials will not be disturbed during the PA Replacement Project.				

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.

5.0 AREAS NOT ACCESSIBLE

During the Inspection the following areas were not accessible:

Void Spaces within Walls, Ceilings & Floors: No destructive sampling was performed on concealed spaces in walls, ceilings or floors 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 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 materials have been identified at the White Plains High School but will not be impacted as part of the upcoming PA Replacement project at the White Plains High School. If at any point the current scope of work changes, ACM materials reported in Section 3.0 of this report, may require complete removal prior to the start of the PA Replacement project.

The ACM inspection was conducted at the request of White Plains Public School District for the upcoming PA Replacement project at the White Plains High School. Any change in the scope of work will require further investigation to accurately classify any additional ACM resulting from the modified or updated scope of work.

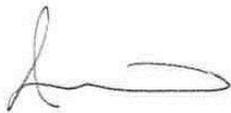
7.0 REPORT CERTIFICATIONS

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of LB's efforts for the environmental inspection work for the upcoming PA Replacement project at the White Plains High School.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of LB's site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which LB is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions solely upon LB'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:



Marvin Luccioni
NYS DOL Inspector

Reviewed by:



Craig Napolitano, CHMM
Vice President, Industrial
Hygiene & Hazmat Services



**APPENDIX A:
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM**



Final Report For Environmental Inspection Services

**APPENDIX A
SAMPLE ANALYSIS RESULTS IN TABULAR FORM
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
1	01	Bldg. G – Hall o/s Room G106	Glazed Brick Mortar, Gray	NAD	N/A
1	02	Stair G2	Glazed Brick Mortar, Gray	NAD	N/A
2	03	Bldg. G	Joint Compound, White	NAD	N/A
2	04	Bldg. E	Joint Compound, White	NAD	N/A
3	05	Bldg. G	Gypsum Board, White	NAD	N/A
3	06	Bldg. E	Gypsum Board, White	NAD	N/A
4	07	Bldg. A Hallway o/s Room A115	Plaster, Brown Coat	NAD	N/A
4	08	Bldg. A Hallway o/s Room A115	Plaster, Brown Coat	NAD	N/A
4	09	Bldg. A Hallway o/s Room A115	Plaster, Brown Coat	NAD	N/A

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 CUSTODY
AND LABORATORY RESULTS**

**EMSL Analytical, Inc.**

528 Mineola Avenue, Carle Place, NY 11514

Phone/Fax: (516) 997-7251 / (516) 997-7528

<http://www.EMSL.com>carleplacelab@emsl.com

EMSL Order:	061802054
CustomerID:	LBAP78
CustomerPO:	2042261.03
ProjectID:	

Attn: **Marvin Luccioni**
Louis Berger U.S., Inc
96 Morton Street
8th floor
New York, NY 10014

Phone: (212) 612-7900
 Fax:
 Received: 02/02/18 4:51 PM
 Analysis Date: 2/4/2018
 Collected: 2/1/2018

Project: W.P.S.D., WPHS, 550 North St., W.P., NY 10605

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non Asbestos		Asbestos
			Fibrous	Non-Fibrous	
Sample ID 1-01 061802054-0001		Description	Bldg. G - Hall O/S Rm. G106 / Stair 92 - Glazed Brick Mortar, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	2/4/2018	Gray/Tan		65.00% Quartz 20.00% Ca Carbonate 15.00% 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 1-02 061802054-0002		Description	Bldg. G - Hall O/S Rm. G106 / Stair 92 - Glazed Brick Mortar, Gray		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	2/4/2018	Gray/Tan		60.00% Quartz 25.00% Ca Carbonate 15.00% 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 2-03 061802054-0003		Description	Bldg. G - Joint Compound, White		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable	2/4/2018	Tan/White		4.00% Mica 81.00% Ca Carbonate 15.00% 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 2-04 061802054-0004		Description	Bldg. E - Joint Compound, White		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	2/5/2018	White		5.00% Mica 80.00% Ca Carbonate 15.00% 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



EMSL Analytical, Inc.

528 Mineola Avenue, Carle Place, NY 11514

Phone/Fax: (516) 997-7251 / (516) 997-7528

<http://www.EMSL.com>

carleplacelab@emsl.com

EMSL Order:	061802054
CustomerID:	LBAP78
CustomerPO:	2042261.03
ProjectID:	

Test Report:Asbestos Analysis of Bulk Material

Test	Color	Non Asbestos		Asbestos
		Fibrous	Non-Fibrous	
Sample ID 3-05 061802054-0005	Description Homogeneity	Bldg. G - Gypsum Board, White Heterogeneous		
PLM NYS 198.1 Friable	2/4/2018	Brown/White	<1% Glass 5.00% Cellulose	80.00% Gypsum 10.00% Ca Carbonate 5.00% 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 3-06 061802054-0006	Description Homogeneity	Bldg. E - Gypsum Board, White Homogeneous		
PLM NYS 198.1 Friable	2/5/2018	Gray	5.00% Cellulose	75.00% Gypsum 20.00% 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 4-07 061802054-0007	Description Homogeneity	Bldg. A - Hallway O/S Rm. A115 - Plaster, Brown Coat Only Homogeneous		
PLM NYS 198.1 Friable	2/4/2018	Gray/Tan		62.00% Quartz 3.00% Mica 18.00% Gypsum 10.00% Ca Carbonate 7.00% 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 4-08 061802054-0008	Description Homogeneity	Bldg. A - Hallway O/S Rm. A115 - Plaster, Brown Coat Only Homogeneous		
PLM NYS 198.1 Friable	2/4/2018	Gray		68.00% Quartz 2.00% Mica 17.00% Gypsum 8.00% Ca Carbonate 5.00% 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 4-09 061802054-0009	Description Homogeneity	Bldg. A - Hallway O/S Rm. A115 - Plaster, Brown Coat Only Homogeneous		
PLM NYS 198.1 Friable	2/5/2018	Gray		80.00% Quartz 20.00% 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 02/05/2018 10:52:46



EMSL Analytical, Inc.

528 Mineola Avenue, Carle Place, NY 11514

Phone/Fax: (516) 997-7251 / (516) 997-7528

<http://www.EMSL.com>

carleplacelab@emsl.com

EMSL Order:	061802054
CustomerID:	LBAP78
CustomerPO:	2042261.03
ProjectID:	

Test Report:Asbestos Analysis of Bulk Material

Test	Color	Non Asbestos		Asbestos
		Fibrous	Non-Fibrous	

Analyst(s)

Daniel Clarke

Steve Juszczuk

Michelle McGowan, 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

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. Carle Place, NY NYS ELAP 11469

061802054

Order ID: 061802054

LOUIS BERGER **ASBESTOS SURVEY DATA SHEET/ CHAIN OF CUSTODY** PAGE 1 OF 1

LB PROJ #: 2042261.030 Service ID #:
 CLIENT: W.P. S.D. LLW#:
 Project Site: WPHS 550 NORTH ST., W.P., NY 10605
 Project Manager:

LOCATION(S) SURVEYED: INTERIOR
 PROPOSED PROJECT: INTERCOM / PA UPGRADE
 DATE(S) OF INSPECTION: 02/01/18
 Inspector(s): ~~02/01/18~~ M. Muccioni

LOUIS BERGER
 TELEPHONE NO. : (212) 612-7900
 ADDRESS: 96 Morton Street, 8 Floor, New York, NY 10014

RESULTS TO: MLMUCIONI@LOUISBERGER.COM
 TURNAROUND TIME: 48hrs
 1 HR. 6 HR. 24 HR. 72 HR.

HA	SAMPLE NO.	MATERIAL DESCRIPTION	SAMPLE LOCATION	APPROX. QUANTITY (LF/SF)	FIELD NOTES
1	01	GLAZED BRICK MORTAR, GRAY	BIDG. G - HALL 015 Rm. G106		
	02	↓	STAIR G2		
2	03	JOINT COMPOUND, WHITE	BIDG. G		
	04	↓	BIDG. E		
3	05	GYPSON BOARD, WHITE	BIDG. G		
	06	↓	BIDG. E		
4	07	PLASTER, BROWN COAT ONLY	BIDG. A. HALLWAY 015 Rm A115		
	08	↓	↓		
	09	↓	↓		

RECEIVED
 ENVIRONMENTAL
 ANALYSIS
 18 FEB -2 PM 4:51

CHAIN OF CUSTODY

Relinquished by: (print) <u>M. Muccioni</u>	(Sign)	01/02/18	4:50 AM PM	Relinquished by:	(Sign)		AM PM	Relinquished by:	(Sign)		AM PM
Received by: (print) <u>Julia Goren</u>	(Sign)	2/2/18	4:56 AM PM	Received by:	(Sign)		AM PM	Received by:	(Sign)		AM PM

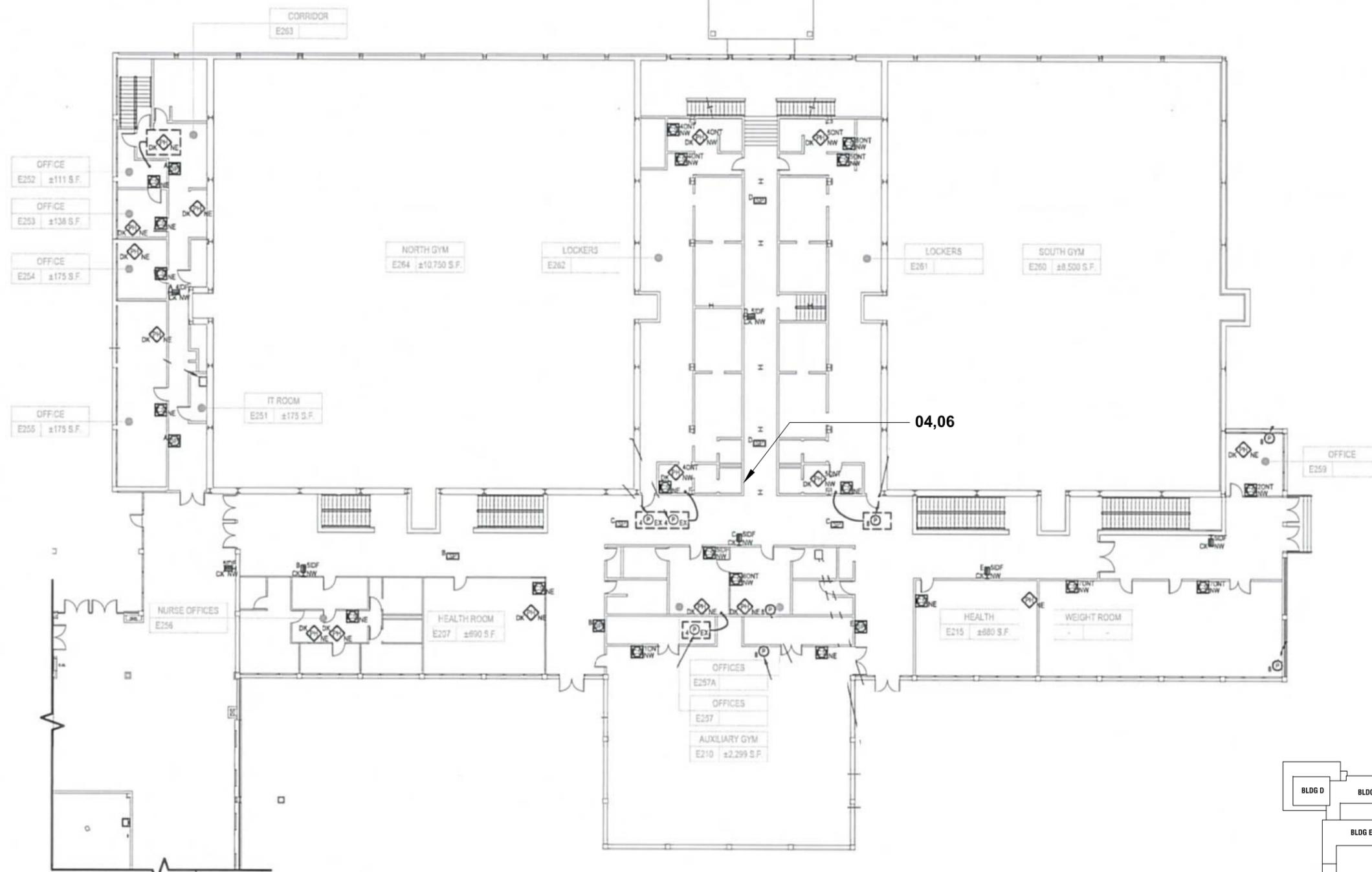
GENERAL NOTES: All inconclusive NOBs to be analyzed by TEM. Please stop at 1st positive in any homogeneous group.

2/4/18 11:35 AM
2/5/18

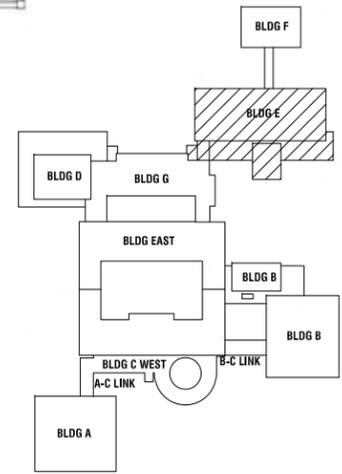
Page 1 OF 1



**APPENDIX C:
ASBESTOS BULK SAMPLE LOCATION DRAWINGS**

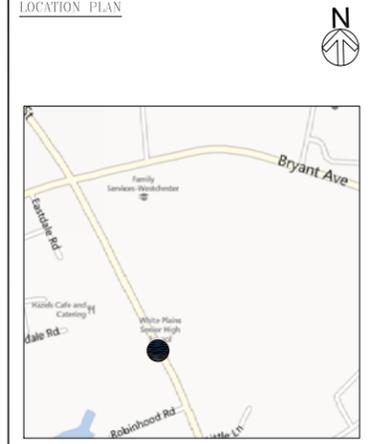


1 GROUND FLOOR PLAN - BUILDING "E"
BSL001 SCALE: NOT TO SCALE



KEY PLAN
SCALE: NOT TO SCALE

LOCATION PLAN



Louis Berger
96 Morton Street, 8th Floor, New York, New York 10014
TEL: 212.612.7900 FAX: 212.363.4341 WWW.louisberger.com



REVISIONS:

NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

WHITE PLAINS CITY SCHOOL DISTRICT

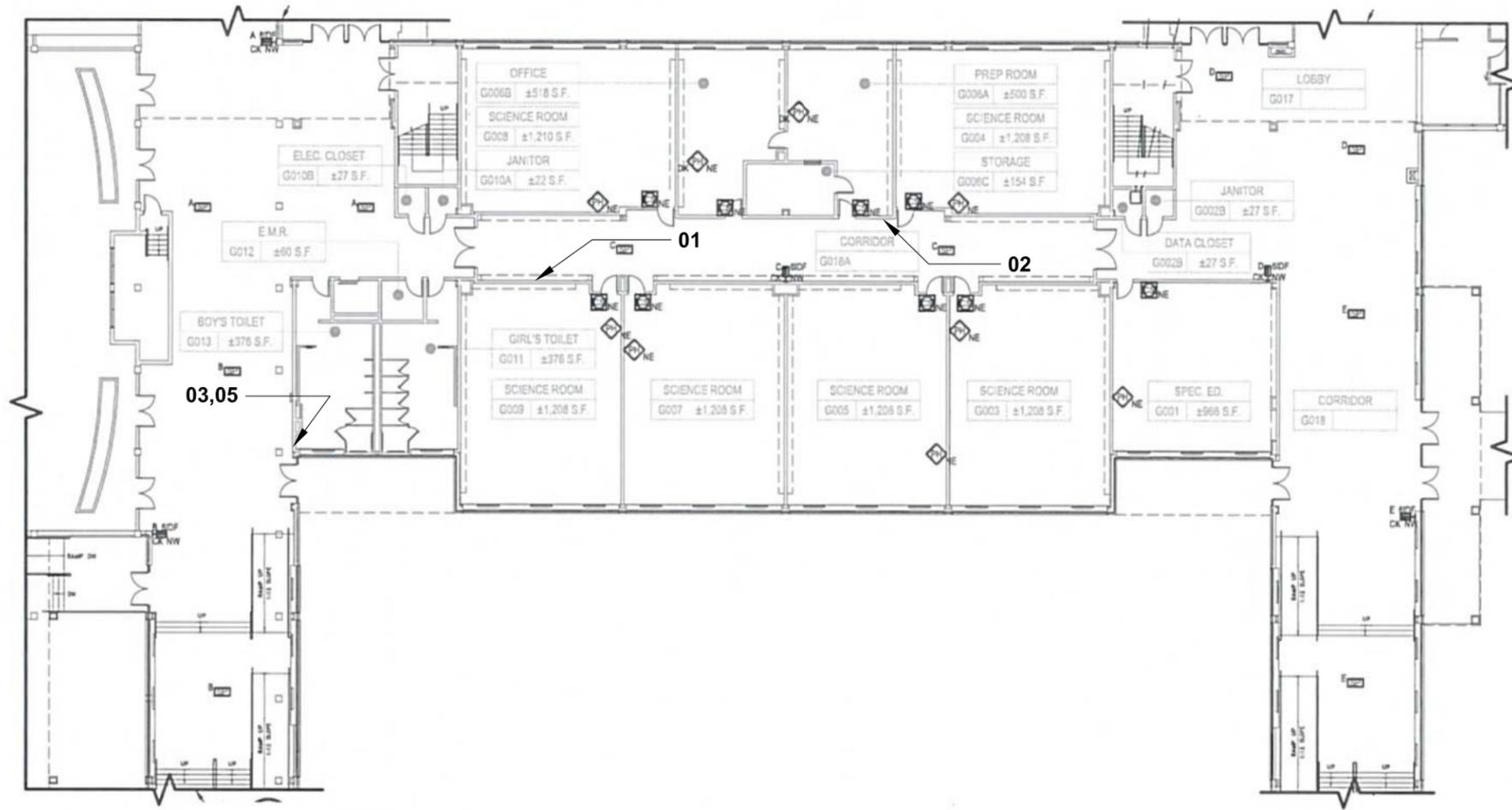
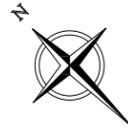
PA REPLACEMENT AT WHITE PLAINS HIGH SCHOOL
580 NORTH STREET
WHITE PLAINS, NY 10605

DRAWING TITLE:
BULK SAMPLE LOCATIONS GROUND FLOOR PLAN - BUILDING "E"

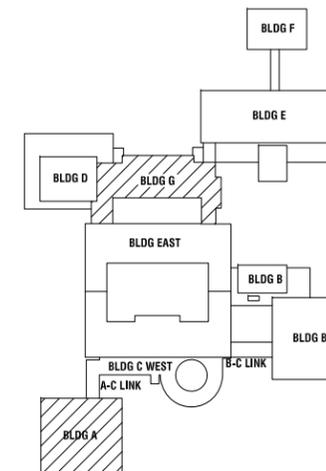
DRAWN BY: J. PEREZ	SCALE: NOT TO SCALE
INSP./INV.: M. LUCCIONI	DATE: 02/07/2018
CERTIFICATE NO.: 03-11021	DRAWING NUMBER
CHECKED BY: C. NAPOLITANO	

BSL001

DRAWING NUMBER
1 OF 3

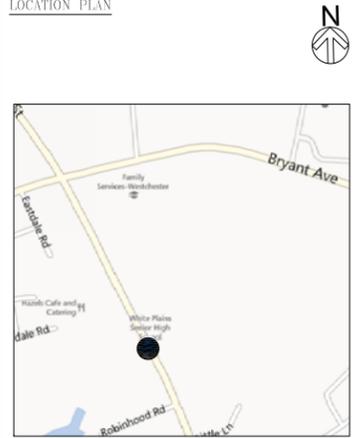


1 GROUND FLOOR PLAN - BUILDING "G"
 BSL002 SCALE: NOT TO SCALE



KEY PLAN
 SCALE: NOT TO SCALE

LOCATION PLAN



Louis Berger
 96 Morton Street, 8th Floor, New York, New York 10014
 TEL: 212.612.7900 FAX: 212.383.4341 WWW.louisberger.com



REVISIONS:

NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

WHITE PLAINS CITY SCHOOL DISTRICT

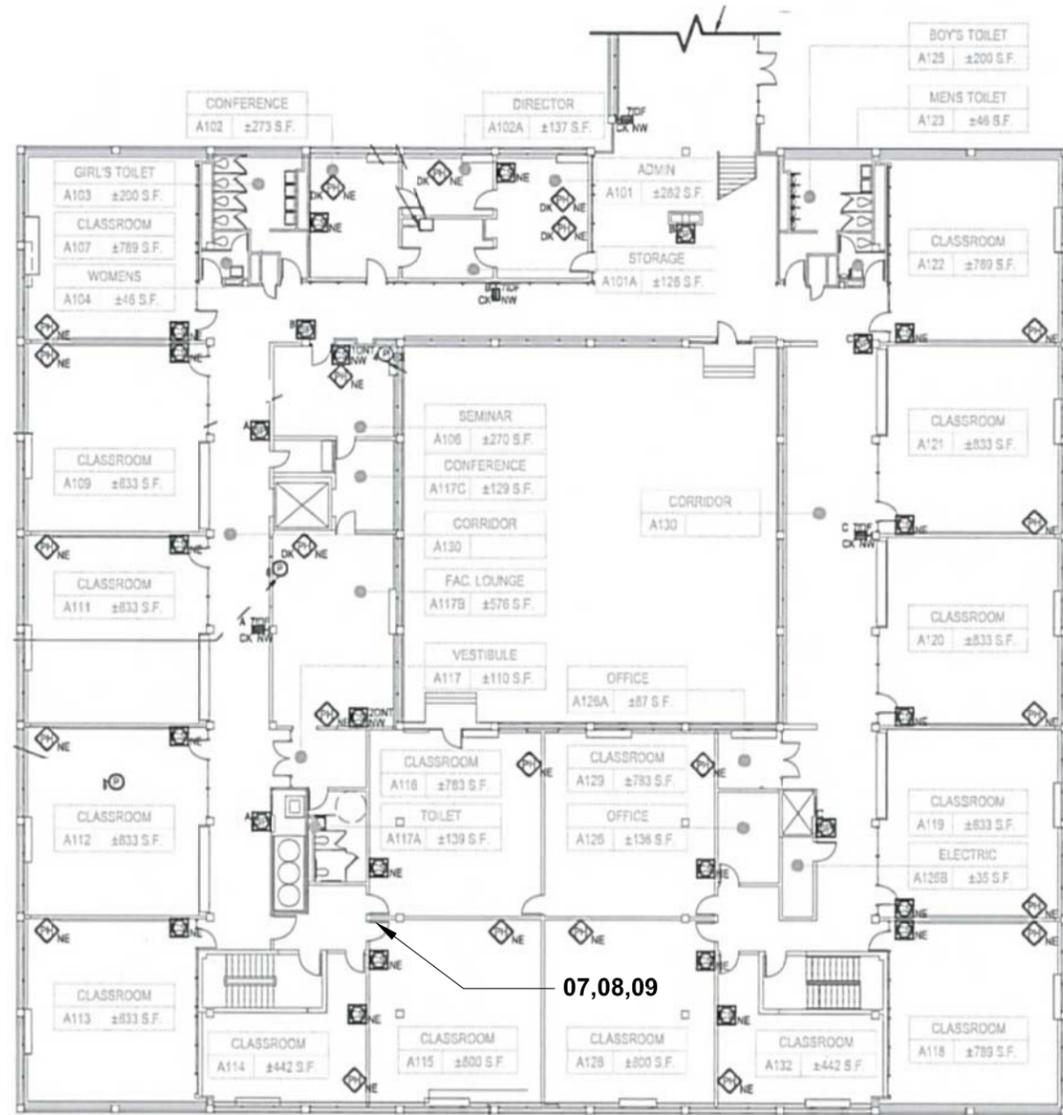
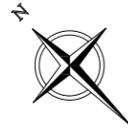
PA REPLACEMENT AT
 WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605

DRAWING TITLE:
**BULK SAMPLE LOCATIONS
 GROUND FLOOR PLAN - BUILDING "G"**

DRAWN BY: J. PEREZ	SCALE: NOT TO SCALE
INSP./INV.: M. LUCCIONI	DATE: 02/07/2018
CERTIFICATE NO.: 03-11021	DRAWING NUMBER
CHECKED BY: C. NAPOLITANO	

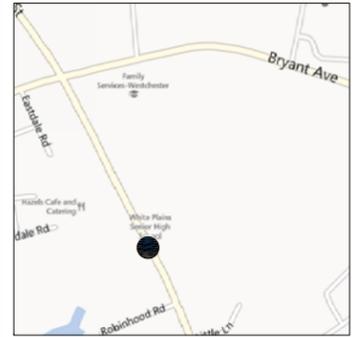
BSL002

DRAWING NUMBER
 2 OF 3



1 FIRST FLOOR PLAN - BUILDING "A"
 BSL003 SCALE: NOT TO SCALE

LOCATION PLAN



Louis Berger

96 Morton Street, 8th Floor, New York, New York 10014
 TEL: 212.612.7900 FAX: 212.363.4341 WWW.louisberger.com



REVISIONS:

NUMBER	DESCRIPTION	DATE
1		
2		
3		
4		

WHITE PLAINS CITY SCHOOL DISTRICT

**PA REPLACEMENT AT WHITE PLAINS HIGH SCHOOL
 580 NORTH STREET
 WHITE PLAINS, NY 10605**

DRAWING TITLE:

**BULK SAMPLE LOCATIONS
 FIRST FLOOR PLAN - BUILDING "A"**

DRAWN BY: J. PEREZ SCALE: NOT TO SCALE

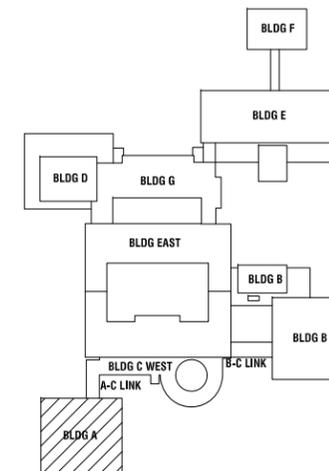
INSP./INV.: M. LUCCIONI DATE: 02/07/2018

CERTIFICATE NO.: 03-11021 DRAWING NUMBER

CHECKED BY: C. NAPOLITANO

BSL003

DRAWING NUMBER
 3 OF 3



KEY PLAN
 SCALE: NOT TO SCALE





**APPENDIX D:
ASBESTOS CONTAINING MATERIALS LOCATION
DRAWINGS**



**APPENDIX E:
COMPANY LICENSE, PERSONNEL CERTIFICATIONS AND
LABORATORY ACCREDITATIONS**

New York State – Department of Labor

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

ASBESTOS HANDLING LICENSE

The Louis Berger Group, Inc.
16th Floor
48 Wall Street

New York, NY 10005

FILE NUMBER: 03-0940
LICENSE NUMBER: 29635
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 01/18/2017
EXPIRATION DATE: 01/31/2018

Duly Authorized Representative – Craig Napolitano:

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

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



Eileen M. Franko, Director
For the Commissioner of Labor



MARVIN LUCCIONI

C/O LOUIS BERGER., 48 WALL ST 16TH FL
NEW YORK NY 10005

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 or call (518) 457-2735

YOUR NEW CARD



NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER



Expires 12:01 AM April 01, 2018
Issued April 01, 2017

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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

MS. MICHELLE MCGOWAN
EMSL ANALYTICAL, INC.
528 MINEOLA AVE.
CARLE PLACE, NY 11514

NY Lab Id No: 11469

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
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

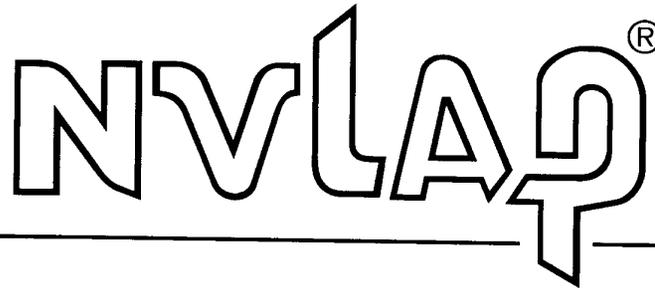
Sample Preparation Methods

EPA 3051A

Serial No.: 56030

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



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-10

EMSL Analytical, Inc.
Carle Place, 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 17025:2005.
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).*

2017-07-01 through 2018-06-30

Effective Dates




For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
528 Mineola Ave.
Carle Place, NY 11514
Ms. Michelle McGowan
Phone: 516-997-7251 Fax: 516-997-7528
Email: mmcgowan@emsl.com
<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-10

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 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

<u>Code</u>	<u>Description</u>
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.

A handwritten signature in black ink, appearing to read "Dana S. Laman".

For the National Voluntary Laboratory Accreditation Program



**APPENDIX F:
PHOTOGRAPHIC DOCUMENTATION**

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605
PHOTODOCUMENTATION LOG**



Photo # 01: 1'x1' Pinhole Pattern Ceiling Tile, White



Photo # 02: 2'x4' Fissured Ceiling Tile, White

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605
PHOTODOCUMENTATION LOG**



Photo # 03: 1'x1' Gouged Ceiling Tile, White



Photo # 04: 2'x4' Small Pinhole Ceiling Tile, White

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605
PHOTODOCUMENTATION LOG**



Photo # 05: 1'x1' Fissured Ceiling Tile, White

**ASBESTOS INSPECTION SERVICES FOR
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605
PHOTODOCUMENTATION LOG**



Photo # 06: 2'x4' (2'x2' Design) Ceiling Tile, White



Photo # 07: 2'x2' Small Pinhole Ceiling Tile, White



**APPENDIX G:
FILE SEARCH**

SUMMARY OF SPACE

2016

**AHERA 3 YEAR RE-INSPECTION REPORT
MANAGEMENT PLAN UPDATE**



Louis Berger
565 Taxter Road, Suite 510
Elmsford, New York 10523

**WHITE PLAINS PUBLIC SCHOOL
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET, WHITE PLAINS, NY 10605**

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
A1027	M. Locker A002	1	9"x9" Floor Tile/Mastic	232 SF	X	-	-	232 SF	
A1029	W. Locker A001	1	9"x9" Floor Tile/Mastic	232 SF	X	-	0.5 SF	231.5 SF	1 Cracked Tile
A2005	Classroom A122	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
A2007	Classroom A121	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A2008	Classroom A120	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A2009	Classroom A119	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A2010	Classroom A118	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
A2023	Classroom A113	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
A2025	Classroom A112	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A2028	Classroom A111	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A2031	Classroom A109	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A2032	Classroom A107	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
A3005	Classroom A222	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
A3006	Classroom A221	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A3008	Classroom A220	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A3009	Classroom A219	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A3010	Classroom A218	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
A3023	Classroom A213	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
A3024	Classroom A212	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A3030	Classroom A209	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A3032	Classroom A208	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
A3033	Classroom A207	1	9"x9" Floor Tile/Mastic	789 SF	X	-	-	789 SF	
B1028	Classroom B119	1	9"x9" Floor Tile/Mastic	808 SF	X	-	-	808 SF	
B1028A	Classroom B119 Closet	1	9"x9" Floor Tile/Mastic	45 SF	X	-	-	45 SF	
B1029	Classroom B120	1	9"x9" Floor Tile/Mastic	836 SF	X	-	-	836 SF	
B1030	Classroom B121	1	9"x9" Floor Tile/Mastic	836 SF	X	-	-	836 SF	
B1031	Classroom B122	1	9"x9" Floor Tile/Mastic	836 SF	X	-	-	836 SF	
B1033	Classroom B123	1	9"x9" Floor Tile/Mastic	808 SF	X	-	-	808 SF	

SUMMARY OF SPACE



Louis Berger
565 Taxter Road, Suite 510
Elmsford, New York 10523

**2016
AHERA 3 YEAR RE-INSPECTION REPORT
MANAGEMENT PLAN UPDATE**

**WHITE PLAINS PUBLIC SCHOOL
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET, WHITE PLAINS, NY 10605**

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
B2010	Classroom B207	1	9"x9" Floor Tile/Mastic	808 SF	X	-	2 SF	806 SF	
B2018	Classroom B211	1	9"x9" Floor Tile/Mastic	836 SF	X	-	-	836 SF	
B2033	Classroom B219	1	9"x9" Floor Tile/Mastic	808 SF	X	-	2 SF	806 SF	
B2034	Classroom B220	1	9"x9" Floor Tile/Mastic	836 SF	X	-	-	836 SF	
B2036	Classroom B221	1	9"x9" Floor Tile/Mastic	836 SF	X	-	-	836 SF	
B2037	Classroom B222	1	9"x9" Floor Tile/Mastic	836 SF	X	-	-	836 SF	
B2038	Classroom B223	1	9"x9" Floor Tile/Mastic	808 SF	X	-	-	808 SF	
C1003	Main Elec. C031	1	9"x9" Floor Tile/Mastic	273 SF	X	-	4 SF	269 SF	
C1005	Janitor's Office C030	1	9"x9" Floor Tile/Mastic	237 SF	X	-	-	237 SF	
		2	Transite Soffit	40 SF	X	-	-	40 SF	
C1008	Teacher's Photo Copy	1	9"x9" Floor Tile/Mastic	793SF	X	-	55 SF	738SF	
C1024	Janitor's Closet A003A	1	9"x9" Floor Tile/Mastic	32 SF	X	-	5 SF	27 SF	Missing Tiles
C1031	Comp. Graph C006	1	9"x9" Floor Tile/Mastic	420 SF	X	-	5 SF	415 SF	
C1032	Video C009	1	9"x9" Floor Tile/Mastic	825 SF	X	-	-	825 SF	
C1039	Classroom C015	1	9"x9" Floor Tile/Mastic	575 SF	X	-	-	575 SF	
C1046	Elec. C015B	1	9"x9" Floor Tile/Mastic	34 SF	X	-	-	34 SF	
C2084	Elec. C115	1	9"x9" Floor Tile/Mastic	30 SF	X	-	2 SF	28 SF	
C2087	Classroom C110	1	9"x9" Floor Tile/Mastic	833 SF	X	-	-	833 SF	
C2088	Classroom C111	1	9"x9" Floor Tile/Mastic	840 SF	X	-	-	840 SF	
C2089	Classroom C109	1	9"x9" Floor Tile/Mastic	825 SF	X	-	-	825 SF	
C2090	Classroom C108	1	9"x9" Floor Tile/Mastic	828 SF	X	-	-	828 SF	
C2092	Classroom C107	1	9"x9" Floor Tile/Mastic	828 SF	X	-	-	828 SF	
C2093	Classroom C105	1	9"x9" Floor Tile/Mastic	828 SF	X	-	-	828 SF	
C2095	Classroom C104	1	9"x9" Floor Tile/Mastic	828 SF	X	-	-	828 SF	
C2105	Janitor's Closet C148A	1	9"x9" Floor Tile/Mastic	35 SF	X	-	2 SF	33 SF	
D2011	Pract. D112	1	9"x9" Floor Tile/Mastic	105 SF	X	-	-	105 SF	
D2012	Pract. D111	1	9"x9" Floor Tile/Mastic	105 SF	X	-	-	105 SF	

SUMMARY OF SPACE



Louis Berger
565 Taxter Road, Suite 510
Elmsford, New York 10523

**2016
AHERA 3 YEAR RE-INSPECTION REPORT
MANAGEMENT PLAN UPDATE**

**WHITE PLAINS PUBLIC SCHOOL
WHITE PLAINS HIGH SCHOOL
550 NORTH STREET, WHITE PLAINS, NY 10605**

Space ID	Description / Common Name	HA	HA Description	Quantity	Assesment	Response Action			Comment
						Remove	Repair	O&M	
D2016	Storage D108B	1	9"x9" Floor Tile/Mastic	263 SF	X	-	5 SF	258 SF	
D2017	Chorus D108	1	9"x9" Floor Tile/Mastic	1,204 SF	X	-	-	1,204 SF	
D2018	Office D108A	1	9"x9" Floor Tile/Mastic	139 SF	X	-	-	139 SF	
E2012	Office	1	9"x9" Floor Tile/Mastic	110 SF	X	-	-	110 SF	
E2014	Office	1	9"x9" Floor Tile/Mastic	95 SF	X	-	-	95 SF	
E2017	Pool Connection Corridor	1	9"x9" Floor Tile/Mastic	1,600 SF	X	-	-	1,600 SF	
E2018	Office	1	9"x9" Floor Tile/Mastic	95 SF	X	-	-	95 SF	
E2022	Office	1	9"x9" Floor Tile/Mastic	110 SF	X	-	-	110 SF	
E3004	Janitor's Closet	1	9"x9" Floor Tile/Mastic	20 SF	X	-	-	20 SF	
E3013	Health E215	1	9"x9" Floor Tile/Mastic	680 SF	X	-	-	680 SF	
E3014	Classroom E216	1	9"x9" Floor Tile/Mastic	680 SF	X	-	-	680 SF	
E3015	Classroom E217	1	9"x9" Floor Tile/Mastic	675 SF	X	-	-	675 SF	
E3017	Office	1	9"x9" Floor Tile/Mastic	100 SF	X	-	-	100 SF	
E3019	Office	1	9"x9" Floor Tile/Mastic	60 SF	X	-	-	60 SF	
E3020	Office	1	9"x9" Floor Tile/Mastic	100 SF	X	-	-	100 SF	
E3022	Office	1	9"x9" Floor Tile/Mastic	100 SF	X	-	-	100 SF	
F2001	Pool	16	Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	120 LF	X	-	-	120 LF	
H1018	South Stairs	1	9"x9" Floor Tile/Mastic	100 SF	X	-	-	100 SF	

ASSESSMENT CATEGORIES

- 1. = Damaged or Significantly Damaged TSI ACBM
- 2. = Damaged Friable Surfacing ACBM
- 3. = Significantly Damaged Friable Surfacing ACBM
- 4. = Damaged or Significantly Damaged Friable Miscellaneous ACBM

- 5. = ACBM with Potential for Damage
- 6. = ACBM with Potential for Significant Damage
- 7. = Any Remaining Friable ACBM or Friable Suspect ACBM
- X. = Not Applicable (Material is Nonfriable Surfacing or Miscellaneous Material)

FINAL REPORT OF ENVIRONMENTAL SERVICES

Performed at:

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**



Prepared by:



The Louis Berger Group, Inc.

565 Taxter Road, 5th Floor

Elmsford, New York 10523

Tel. (914) 798-3710

Fax (914) 592-1734

Project No. 3000825

Submission Date: September 11, 2013



The Louis Berger Group Inc.

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www.louisberger.com

September 11, 2013

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10605

**Subject: Final Report of Environmental Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger Group (LBG) has completed a material Inspection at White Plains High School located at 550 North Street, White Plains, NY 10605. The Inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) associated with proposed renovations.

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,

THE LOUIS BERGER GROUP (LBG)

Craig Napolitano, CHMM
Director, Industrial Hygiene & Hazmat Services



Final Report for Environmental Inspection 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

Appendix E: PCB Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results

Appendix F: Company License, Personnel Certifications and Laboratory Accreditations

Appendix G: Photographic Documentation



Final Report for Environmental Inspection Services

1.0 EXECUTIVE SUMMARY

Louis Berger Group, Inc (LBG) has performed a renovation specific material Inspection for the presence or absence of Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) at White Plains High School located at 550 North Street, White Plains, NY 10605. The intent of this Inspection was to screen for Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) that may be impacted during the proposed renovations.

Michael Gelfand and Dmitri Kirnossenko of LBG performed this Inspection on July 24, 2013, and Andrew Cheskin performed an additional inspection on September 4, 2013. Mr. Kirnossenko has New York State Department of Labor (NYSDOL) Asbestos Inspector License (Cert# 07-01720). Mr. Gelfand has NYSDOL Asbestos Inspector License (Cert# 98-17113). Mr. Cheskin has NYSDOL Asbestos Inspector License (Cert# 05-04280). The results of the visual inspection and bulk sample analysis determined that the following suspect ACM and PCB materials may be impacted by the renovation project:

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- **9"x9" Beige Floor Tiles (Auditorium)**
- **Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)**
- **Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)**
- **Exterior Metal Wall Panel Frame Caulking (Pool Building)**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

Analytical results of the bulk samples collected indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)



Final Report for Environmental Inspection

Services

- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

The following materials were **assumed to contain asbestos**:

- **9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C**
- **9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor**
- **Ceiling Scratch Coat, Pool Building**
- **Ceiling Tectum Tiles, North and South Gym**
- **Built-up Roofing on Gym Roof**
- **Mechanical Equipment Flashing on Gym Roof**

B. 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);

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)



Final Report for Environmental Inspection

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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 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 25th, 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 25th 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



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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 25th, 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 101048-9)
- New York State Environmental Laboratory Approval Program (Lab No. 11506)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102581)

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



Final Report for Environmental Inspection

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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.



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3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT

The areas inspected for suspect ACM and PCB materials that may be impacted by the proposed renovations. Locations surveyed include:

- Building Exterior
- Hallways
- Rooms
- Auditorium
- Gymnasiums
- Pool
- Gym Roof, Gym Mechanical Room Roof

A. ASBESTOS-CONTAINING MATERIAL

Materials examined during the Berger Inspection included:

- 9"x9" Beige Floor Tiles (Auditorium)
- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg. A Gas Room Exit)
- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- 9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C



Final Report for Environmental Inspection

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- 9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor
- Ceiling Scratch Coat, Pool Building
- Ceiling Tectum Tiles, North and South Gym
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

Based upon visual inspection and bulk sample analysis asbestos has been confirmed to exist in the following materials:

- **9"x9" Beige Floor Tiles (Auditorium)**
- **Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)**
- **Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)**
- **Exterior Metal Wall Panel Frame Caulking (Pool Building)**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

Asbestos was **not detected** in the following materials via PLM and/or TEM analysis:

- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- Roof Decking, Gym Mechanical Room Roof
- Paper to Foam Insulation, Gym Mechanical Room Roof and Gym Roof
- Fiberboard Insulation, Gym Mechanical Room Roof and Gym Roof



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- Fabric Barrier, Gym Mechanical Room Roof and Gym Roof
- Tar on Concrete Deck, Gym Roof

The following materials were **assumed to contain asbestos**:

- **9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C**
- **9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor**
- **Ceiling Scratch Coat, Pool Building**
- **Ceiling Tectum Tiles, North and South Gym**

B. PCB-CONTAINING MATERIAL

Materials examined during the Inspection included:

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)

Based upon visual inspection and bulk sample, PCBs have been confirmed to exist in the following materials:

- **None**

PCB was **not detected** in the following testing combinations within the building via bulk sample analysis:

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)



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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 renovations. The following suspect materials were sampled and analyzed for asbestos content by Berger:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
A	Auditorium	Baseboard Glue (brown)	NAD
B	Auditorium	Baseboard Molding (brown)	NAD
C	Auditorium	Mastic assoc. with 9"x9" Floor Tiles (black)	NAD
D	Auditorium	9"x9" Beige Floor Tiles	ACM
E	Pool Connection Corridor	2'x4' Ceiling Tiles (grey)	NAD
F	Pool Connection Corridor	Baseboard Glue (brown)	NAD
G	Pool Connection Corridor	Baseboard (brown)	NAD
H	Pool Bldg.	Wall Ceramic Tile Grout (white)	NAD
I	Pool Bldg.	Floor Ceramic Tile Grout (brown)	NAD
J	Pool Bldg.	Glazing at Entrance Aluminum Framing/Panels (white)	NAD
K	Pool Bldg.	Interior Brick Mortar (grey)	NAD
L	Pool Bldg.	Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	ACM
M	Pool Bldg.	Exterior metal Wall Panel Glazing (type 1) (grey)	Contaminated ACM
N	Pool Bldg.	Exterior metal Wall Panel Glazing (type 2) (light grey)	ACM
O	Pool Bldg.	Exterior Metal Wall Panel Frame Caulking (grey)	ACM
P	Auditorium	Cinderblock Mortar (grey)	NAD
Q	1 st Floor Rooms	1'x1' Pinhole Ceiling Tiles (white)	NAD
R	1 st Floor Rooms	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
S	2 nd Floor Rooms	1'x1' Pinhole Ceiling Tiles (white)	NAD
T	2 nd Floor Rooms	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
U	1 st Floor Hallways	1'x1' Pinhole Ceiling Tiles (white)	NAD
V	1 st Floor Hallways	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
W	2 nd Floor Hallways	1'x1' Pinhole Ceiling Tiles (white)	NAD
X	2 nd Floor Hallways	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD



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HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
Y	Bldgs. A, B, C 1 st Floor	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD
Z	Bldgs. A, B, C 2 nd Floor	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD
A1	Bldgs. A, B, C	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD
B1	Bldgs. A, B, C	Wrap around Fiberglass Pipe Insulation (brown)	NAD
C1	Bldgs. A, B, C	Cinderblock Mortar (grey)	NAD
D1	Bldgs. A, B, C	Sheetrock Walls (white)	NAD
E1	Bldgs. A, B, C	Joint Compound assoc. with Sheetrock Walls (white)	NAD
F1	Gym Bldg.	Cinderblock Wall Mortar (grey)	NAD
G1	Gym Roof	Caulking at Metal Exhaust Vent Edges (grey)	NAD
H1	Gym Roof	Caulking at Flashing on Gym Mechanical Roof (black)	ACM
I1	Bldg. A Gas Room Exit (NW corner of Bldg.)	Exterior Door Frame Caulking (grey)	ACM
1	Gym Mechanical Room Roof	Roof Decking	NAD
2	Gym Mechanical Room Roof	Paper to Foam Insulation	NAD
3	Gym Mechanical Room Roof	Fiberboard Insulation	NAD
4	Gym Mechanical Room Roof	Fabric Barrier	NAD
5	Gym Roof	Tar on Concrete Deck	NAD
6	Gym Roof	Paper to Foam Insulation	NAD
7	Gym Roof	Fabric Barrier	NAD

Bold = Positive for ACM NAD = No Asbestos Detected

B. PCB-CONTAINING MATERIAL

The PCB Inspection involved a thorough visual examination of all areas that may be impacted by the proposed renovations. The following suspect materials were tested for PCB content:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
B	Pool Building	Interior Vertical Expansion Joint Caulking at Brick Curtain Walls	ND
C	Pool Building	Exterior metal Wall Panel Glazing (type 1)	ND
D	Pool Building	Exterior metal Wall Panel Glazing (type 2)	ND



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HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
E	Pool Building	Exterior Metal Wall Panel Frame Caulking	ND
F	Bldgs. A, B, C	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	
G	Gym Roof	Caulking at Metal Exhaust Vent Edges	ND
H	Gym Roof	Caulking at Flashing on Gym Mechanical Roof	ND
I	Bldg. A Gas Room Exit (NW corner of Bldg.)	Exterior Door Frame Caulking	ND

Bold = Positive for PCB ND = No PCB Detected

4.2 SAMPLE ANALYSIS TABLE

ACM laboratory analysis results are included in Appendix A.

5.0 AREAS NOT ACCESSIBLE

During the Inspection the following areas were not accessible:

- Void Spaces within Walls: No destructive sampling was performed on concealed spaces in walls to access plenum, chases etc. 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.
- Pool Ceiling

6.0 CONCLUSIONS AND RECOMMENDATIONS

ACM materials have been identified in this inspection that may be impacted as part of the renovations at the White Plains High School. These materials, reported in Section 3.0 of this report, may require complete removal prior to the start of the renovation project. No PCBs were identified during this Inspection.

The ACM & PCB Inspection was conducted at the request of White Plains City School District for the proposed renovations, as provided by email from H2M Senior Project Architect. Any change in the scope of work will require further investigation to accurately classify any additional ACM or PCBs resulting from the modified or updated scope of work.



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7.0 REPORT CERTIFICATIONS

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of LBG's efforts for the environmental inspection work for the White Plains High School.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of LBG's site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which LBG is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions solely upon LBG'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:

Michael Gelfand
NYS DOL Inspector

Reviewed by:

Craig Napolitano, CHMM
Director, Industrial
Hygiene & Hazmat Services



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**APPENDIX A:
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM**



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APPENDIX A SAMPLE ANALYSIS RESULTS IN TABULAR FORM WHITE PLAINS HIGH SCHOOL 550 NORTH STREET WHITE PLAINS, NY 10605

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
A	1	Auditorium, by Entrance	Baseboard Glue (brown)	NAD	NAD
A	2	Auditorium, by Stage	Baseboard Glue (brown)	NAD	NAD
B	3	Auditorium, by Entrance	Baseboard Molding (brown)	NAD	NAD
B	4	Auditorium, by Stage	Baseboard Molding (brown)	NAD	NAD
C	5	Auditorium, by Entrance	Mastic assoc. with 9"x9" Floor Tiles (black)	NAD	NAD
C	6	Auditorium, middle	Mastic assoc. with 9"x9" Floor Tiles (black)	<1% Chrysotile	<1% Chrysotile
D	7	Auditorium, by Entrance	9"x9" Beige Floor Tiles	2.4% Chrysotile	NA/PS
D	8	Auditorium, middle	9"x9" Beige Floor Tiles	NA/PS	NA/PS
E	9	Pool Connection Corridor, south	2'x4' Ceiling Tiles (grey)	NAD	NAD
E	10	Pool Connection Corridor, north	2'x4' Ceiling Tiles (grey)	NAD	NAD
F	11	Pool Connection Corridor, south	Baseboard Glue (brown)	NAD	NAD
F	12	Pool Connection Corridor, north	Baseboard Glue (brown)	NAD	NAD
G	13	Pool Connection Corridor, south	Baseboard (brown)	NAD	NAD
G	14	Pool Connection Corridor, north	Baseboard (brown)	NAD	NAD
H	15	Pool Bldg., south	Wall Ceramic Tile Grout (white)	NAD	N/A
H	16	Pool Bldg., north	Wall Ceramic Tile Grout (white)	NAD	N/A
I	17	Pool Bldg., south	Floor Ceramic Tile Grout (brown)	NAD	N/A

Bold = Positive for ACM
NAD = No Asbestos Detected

N/A = Not Applicable
NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
I	18	Pool Bldg., north	Floor Ceramic Tile Grout (brown)	NAD	N/A
J	19	Pool Bldg., Entrance Wall	Glazing at Entrance Aluminum Framing/Panels (white)	NAD	NAD
J	20	Pool Bldg., Entrance Wall	Glazing at Entrance Aluminum Framing/Panels (white)	NAD	NAD
K	21	Pool Bldg., north	Interior Brick Mortar (grey)	NAD	N/A
K	22	Pool Bldg., south	Interior Brick Mortar (grey)	NAD	N/A
L	23	Pool Bldg., SW corner	Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	1.4% Chrysotile	NA/PS
L	24	Pool Bldg., NW corner	Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	NA/PS	NA/PS
M	25	Pool Bldg. West Wall, NW side	Exterior metal Wall Panel Glazing (type 1) (grey)	NAD	NAD
M	26	Pool Bldg. West Wall, SW side	Exterior metal Wall Panel Glazing (type 1) (grey)	NAD	NAD
N	27	Pool Bldg. West Wall, NW side	Exterior metal Wall Panel Glazing (type 2) (light grey)	1.2% Chrysotile	NA/PS
N	28	Pool Bldg. West Wall, SW side	Exterior metal Wall Panel Glazing (type 2) (light grey)	NA/PS	NA/PS
O	29	Pool Bldg. West Wall, NW side	Exterior Metal Wall Panel Frame Caulking (grey)	1.2% Chrysotile	NA/PS
O	30	Pool Bldg. West Wall, SW side	Exterior Metal Wall Panel Frame Caulking (grey)	NA/PS	NA/PS
P	31	Auditorium, SE side	Cinderblock Mortar (grey)	NAD	N/A
P	32	Auditorium, SW side	Cinderblock Mortar (grey)	NAD	N/A
Q	33	Bldg A 1 st Floor - Rm. A122	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
Q	34	Bldg. C 1 st Floor - Rm. C145	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
R	35	Bldg A 1 st Floor - Rm. A122	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
R	36	Bldg. C 1 st Floor – Rm. C145	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
S	37	Bldg A 2 nd Floor - Rm. A221	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
S	38	Bldg. B 2 nd Floor – Rm. B212	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
T	39	Bldg A 2 nd Floor - Rm. A221	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
T	40	Bldg. B 2 nd Floor – Rm. B212	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
U	41	Bldg. A 1 st Floor – Hallway at Rm. A122	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
U	42	Bldg. C 1 st Floor – Hallway at Rm. C145	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
V	43	Bldg. A 1 st Floor – Hallway at Rm. A122	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
V	44	Bldg. C 1 st Floor – Hallway at Rm. C145	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
W	45	Bldg A 2 nd Floor – Hallway at Rm. A221	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
W	46	Bldg. B 2 nd Floor – Hallway at Rm. B212	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
X	47	Bldg A 2 nd Floor – Hallway at Rm. A221	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
X	48	Bldg. B 2 nd Floor – Hallway at Rm. B212	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
Y	49	Bldg A 1 st Floor - Rm. A122	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD	NAD
Y	50	Bldg. C 1 st Floor – Rm. C145	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD	<1% Chrysotile
Z	51	Bldg A 2 nd Floor - Rm. A221	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	<1% Chrysotile	<1% Chrysotile
Z	52	Bldg. B 2 nd Floor – Rm. B212	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	<1% Chrysotile	<1% Chrysotile

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
A1	53	Bldg. A 1 st Floor – Hallway at Rm. A125	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD	N/A
A1	54	Bldg. A 1 st Floor – Hallway at Rm. A101	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD	N/A
A1	55	Bldg. A 1 st Floor – Boiler Room A013	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD	N/A
B1	56	Bldg. A 1 st Floor – Hallway at Rm. A125	Wrap around Fiberglass Pipe Insulation (brown)	NAD	N/A
B1	57	Bldg. A 1 st Floor – Hallway at Rm. A101	Wrap around Fiberglass Pipe Insulation (brown)	NAD	N/A
B1	58	Bldg. A 1 st Floor – Boiler Room A013	Wrap around Fiberglass Pipe Insulation (brown)	NAD	N/A
C1	59	Bldg A, 1 st Floor Stair AS2	Cinderblock Mortar (grey)	NAD	N/A
C1	60	Bldg. C, 1 st Floor Stair C31	Cinderblock Mortar (grey)	NAD	N/A
D1	61	Bldg. C 1 st Floor Hallway	Sheetrock Walls (white)	NAD	N/A
D1	62	Bldg. C 1 st Floor Hallway	Sheetrock Walls (white)	NAD	N/A
E1	63	Bldg. C 1 st Floor Hallway	Joint Compound assoc. with Sheetrock Walls (white)	NAD	N/A
E1	64	Bldg. C 1 st Floor Hallway	Joint Compound assoc. with Sheetrock Walls (white)	NAD	N/A
F1	65	Gyms Bldg. – South Gym	Cinderblock Wall Mortar (grey)	NAD	N/A
F1	66	Gyms Bldg. – North Gym	Cinderblock Wall Mortar (grey)	NAD	N/A
G1	67	South Gym Roof	Caulking at Metal Exhaust Vent Edges (grey)	NAD	NAD
G1	68	North Gym Roof	Caulking at Metal Exhaust Vent Edges (grey)	NAD	NAD
H1	69	Gym Roof – East side	Caulking at Flashing on Gym Mechanical Roof (black)	1.2% Chrysotile	NA/PS

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
H1	70	Gym Roof - West side	Caulking at Flashing on Gym Mechanical Roof (black)	NA/PS	NA/PS
I1	71	Bldg A Gas Room Exit, NW corner	Exterior Door Frame Caulking (grey)	1.2% Chrysotile	NA/PS
I1	72	Bldg A Gas Room Exit, NW corner	Exterior Door Frame Caulking (grey)	NA/PS	NA/PS
1	1A	Gym Mechanical Room Roof	Roof Decking	NAD	N/A
1	1B	Gym Mechanical Room Roof	Roof Decking	NAD	N/A
2	2A	Gym Mechanical Room Roof	Paper to Foam Insulation	NAD	N/A
2	2B	Gym Mechanical Room Roof	Paper to Foam Insulation	NAD	N/A
3	3A	Gym Mechanical Room Roof	Fiberboard Insulation	NAD	N/A
3	3B	Gym Mechanical Room Roof	Fiberboard Insulation	NAD	N/A
4	4A	Gym Mechanical Room Roof	Fabric Barrier	NAD	N/A
4	4B	Gym Mechanical Room Roof	Fabric Barrier	NAD	N/A
5	5A	Main Gym Roof	Tar on Concrete Deck	NAD	NAD
5	5B	Lower Gym Roof	Tar on Concrete Deck	NAD	NAD
6	6A	Main Gym Roof	Paper to Foam Insulation	NAD	N/A
6	6B	Lower Gym Roof	Paper to Foam Insulation	NAD	N/A
7	7A	Main Gym Roof	Fabric Barrier	NAD	N/A
7	7B	Lower Gym Roof	Fabric Barrier	NAD	N/A

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample

**LIMITED INSPECTION
FOR
ASBESTOS-CONTAINING MATERIALS**

**White Plains High School
550 North Street
White Plains, NY 10605**



Prepared For:



**White Plains Public Schools
5 Homeside Lane
White Plains, NY 10605**

Prepared By:



LOUIS BERGER & ASSOC., P.C.

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**PROJECT NO. 3000865.00
Submission: November 15, 2013**



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November 15, 2013

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10605

**Subject: Report of Limited Asbestos Inspection Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger & Assoc., P.C. (LBA) has completed a limited asbestos materials survey at the White Plains High School located at 550 North Street, White Plains, New York. The survey included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM).

The attached report presents descriptions and results of the material sampling procedures and 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,

LOUIS BERGER & ASSOC., P.C. (LBA)

Craig Napolitano, CHMM
Director, Industrial Hygiene & Hazmat Services



Limited Asbestos Inspection Report

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APPENDICES

Appendix A: Summary of Asbestos Bulk Sample Locations, Laboratory Analysis Results and Chain of Custody

Appendix B: Laboratory Accreditations and Personnel/Company Certifications

Appendix C: Bulk Sample Locations Drawings

Appendix D: Asbestos Containing Material Locations Drawings

Appendix E: Photo Log



Limited Asbestos Inspection Report

1.0 INTRODUCTION

At the request of the White Plains Public Schools, Louis Berger & Assoc., P.C. (LBA) has conducted a limited asbestos materials survey for the presence of asbestos-containing materials (ACM) for the Ceiling Tile Bulk Sampling at White Plains High School located at 550 North Street, White Plains, New York. The asbestos inspection was conducted on October 18, 2013 by Mr. Josue Garcia. Mr. Garcia (Cert# 01-04292) is a New York State Department of Labor (NYS DOL) Asbestos Inspector. The limited inspection involved a visual examination and sampling of all suspect ceiling tiles throughout the school. Inspection results are presented in Appendix A.

2.0 FIELD SURVEY PROCEDURES AND SAMPLE ANALYSIS METHODS

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 survey, 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 25th, 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



Limited Asbestos Inspection Report

procedure of analysis for bulk samples that fall into the category of "Non-friable Organically Bound" (NOB) can be found in the March 25th 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 25th, 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 101048-9)
- New York State Environmental Laboratory Approval Program (Lab No. 11506)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102581)



Limited Asbestos Inspection Report

3.0 SUMMARY OF INSPECTION RESULTS

The limited asbestos inspection was conducted on October 18, 2013 and involved a visual examination of Ground Floor, First Floor and Second Floor. Sampling of all suspect ceiling tiles was also performed. Inspection results are presented in Appendix A.

Asbestos in amounts **greater than 1%** was found in the following material:

Throughout Building:

- **None**

Laboratory analysis and/or visual inspection confirmed **no asbestos** present in amounts greater than 1% in samples collected from the following materials:

Throughout Building:

- 1'x1' Pinhole Pattern Ceiling Tile, White
- 2'x4' Fissured Ceiling Tile, White
- 1'x1' Gouged Ceiling Tile, White
- 2'x4' Small Pinhole Ceiling Tile, White
- 1'x1' Fissured Ceiling Tile, White
- 2'x4' (2'x2' Design) Ceiling Tile, White
- 2'x2' Small Pinhole Ceiling Tile, White

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on analytical results and our observations, the following materials were determined to be ACM:

- **None**

In the event that identified ACMs are to be disturbed by renovation work, proper asbestos abatement procedures are required to be implemented prior to the commencement of such work. All asbestos abatement work must be performed in accordance with all applicable Federal, State and Local rules and regulations. A licensed abatement contractor must perform the removal of all friable and non-friable ACM.



Limited Asbestos Inspection Report

5.0 ASBESTOS ABATEMENT COST ESTIMATES

The unit costs listed in this section are based on other projects of similar size, location and complexity. The cost estimate is budgetary in nature, since there are many variables that will affect the final construction cost. The costs presented are based on extrapolations from current construction prices available to us for comparable work in this area. "Means" guides were consulted, when applicable, with regional price adjustments for this area. However, Berger relies primarily on costs obtained from similar work recently bid.

Prices are based on current costs associated with prevailing wages and a competitive bid situation. Quantities are derived from our observation and linear takes-offs where drawings were made available to us or schematic drawing could easily be created from available information. Actual construction costs may vary based on a fully developed scope of work delineated in construction plans and specifications.

There will be other factors affecting the costs at the time projects are actually scheduled and bid. Such factors include the overall size of the total work package bid by a contractor, unforeseen conditions, state of the economy, inflation and the availability of materials. If the project is phased, escalation in cost should be anticipated.

Cost estimates have been prepared with the following assumptions:

- Union labor or prevailing wage
- Insurance, profit and overhead costs have been estimated and will vary among contractors
- All work areas may not be able to be abated in a continuous fashion and down time may occur for varying periods.
- Electric power and water to be provided by others
- Prices do not include air monitoring costs
- Reinstallation work has not been factored into the cost estimates

Asbestos Material	Quantity	Unit Price	Cost Estimate
	0 SF	\$10	\$0
		<i>ACM Removal Sub-Total</i>	\$0
		<i>Decontaminations Units</i>	\$0
		<i>Mobilization & Demobilization</i>	\$0
		<i>Sub-Totals</i>	\$0
		<i>Insurance @ 7%</i>	\$0
		<i>Profit/Overhead @ 15%</i>	\$0

Notes:

1. The above cost includes the waste hauling charges, filing fees and other miscellaneous cost associated with asbestos abatement by the abatement contractor.



Limited Asbestos Inspection Report

6.0 AREAS NOT ACCESSIBLE

Louis Berger & Assoc., P.C. inspected and sampled materials, which were observable and accessible to the survey team. It is possible, however, that additional suspect ACM may exist within interstitial space (i.e. above fixed ceilings, etc.), which were not accessible without using destructive means. Any materials that have not been tested and/or found asbestos positive must be assumed ACM.

7.0 LIMITATIONS, EXCEPTIONS, ASSUMPTIONS & CERTIFICATIONS

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of Berger's site visit, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which Berger is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions solely upon Berger's visual observations of accessible areas, laboratory test data, and current regulatory requirements. These conclusions are intended exclusively for the purpose stated herein, at the site indicated, for the ceiling tile bulk sampling reassessment project.

It is important to recognize that even the most comprehensive scope of services may fail to detect all asbestos containing materials that may be associated with the property. Therefore, Berger cannot act as insurers and cannot "certify" that all ACM associated with the property have been identified, and no expressed or implied representation or warranty is included or intended in our reports, except that our services were performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

Prepared by:

Josue Garcia
Senior Environmental Specialist

Reviewed by:

Craig Napolitano, CHMM
Director, Industrial Hygiene
& Hazmat Services



Limited Asbestos Inspection Report

APPENDIX A: SUMMARY OF ASBESTOS BULK SAMPLE LOCATIONS, LABORATORY ANALYTICAL RESULTS AND CHAIN OF CUSTODY



**APPENDIX A
SAMPLE ANALYSIS RESULTS IN TABULAR FORM**

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**

Homogeneous Area No.	Sample No.	Location	Material	ACM Quantity	Condition	Friability	PLM Result	TEM Result
01	01	Bldg. C West – Ground Floor, Auto Shop C002D	1’x1’ Pinhole Pattern Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
01	02	Bldg. B – Second Floor, Room B220	1’x1’ Pinhole Pattern Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
02	03	Bldg. A – Ground Floor, Storage A006	2’x4’ Fissured Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
02	04	Bldg. C West – First Floor, Office C122	2’x4’ Fissured Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
03	05	Bldg. A – First Floor, Room A114	1’x1’ Gouged Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
03	06	Bldg. C West – First Floor, Lobby C128	1’x1’ Gouged Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
04	07	Bldg. C West – First Floor, Conference C134	2’x4’ Small Pinhole Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
04	08	Bldg. G – Ground Floor, Corridor G018A	2’x4’ Small Pinhole Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
05	09	Bldg. B – Second Floor, Office B201B	1’x1’ Fissured Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
05	10	Bldg. B – Second Floor, Office B201C	1’x1’ Fissured Ceiling Tile, White	--	--	Non-Friable	NAD	NAD



Limited Asbestos Inspection Report

Homogeneous Area No.	Sample No.	Location	Material	ACM Quantity	Condition	Friability	PLM Result	TEM Result
06	11	Bldg. C West – First Floor, Lobby C128	2'x4' (2'x2' Design) Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
06	12	Bldg. C East – First Floor, Room C151	2'x4' (2'x2' Design) Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
07	13	Bldg. C West – First Floor, Lobby C128	2'x2' Small Pinhole Ceiling Tile, White	--	--	Non-Friable	NAD	NAD
07	14	Bldg. C West – First Floor, Lobby C128	2'x2' Small Pinhole Ceiling Tile, White	--	--	Non-Friable	NAD	NAD

NAD = No Asbestos Detected

N/A = Not Applicable

Bold = Positive for ACM

NA/PS = Not analyzed/ positive sample



April 6, 2017

Mr. Frank Stefanelli
Director of Facilities
White Plains Public Schools
580 North Street
White Plains, NY 10605

Subject: Letter Report for Limited Asbestos Survey Services in Conjunction with the Steam Tunnel Project at the White Plains High School, 550 North Street, White Plains, NY

Dear Mr. Stefanelli:

Louis Berger (Berger) has completed a limited asbestos materials survey at the White Plains High School specifically in the steam tunnels. The limited asbestos survey was conducted on March 29 through 30, 2017 by Marvin Luccioni, a NYS DOL Licensed Asbestos Inspector (Cert# 03-11021). The limited asbestos survey included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) for the upcoming steam tunnel project. Berger inspected the following suspect materials in order to address specific concerns and suspect materials to be impacted by the current scope of work (SOW).

Homogeneous Groups	Location(s)	Material Description	No. of Samples	Results	Quantity
White Plains High School 550 North Street, White Plains, NY					
01	Bldg. A Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
02	Bldg. A Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	NAD	---
03	Bldg. A Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---
04	Bldg. A Steam Tunnels	Cloth Fabric over FG Pipe Ins. (Beige)	3	NAD	---
05	Bldg. A Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
06	Bldg. B Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	33.30% Chrysotile	25 LF
07	Bldg. B Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	16.00% Chrysotile	50 SF
08	Bldg. B Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---



09	Bldg. B Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
10	Bldg. C Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	18.20% Chrysotile	35 LF
11	Bldg. C Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	28.60% Chrysotile	45 SF
12	Bldg. C Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	<1.00% Chrysotile	---
13	Bldg. C Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
14	Bldg. D Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
15	Bldg. D Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	28.60% Chrysotile	55 SF
16	Bldg. D Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---
17	Bldg. D Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
18	Bldg. E Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	27.30% Chrysotile	25 LF
19	Bldg. E Steam Tunnels	Debris (Mudded Joints/Pipe Ins.) inside Wall Penetrations & Ground (Gray)	3	22.20% Chrysotile	55 SF
20	Bldg. E Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	NAD	---
21	Bldg. E Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
22	Bldg. E Steam Tunnels	Paper (Pipe) Ins. Debris on Ground (White)	3	NAD	---
23	Bldg. E Steam Tunnels	Cementitious Material on Ground (Gray)	2	NAD	---
24	Bldg. F Steam Tunnels	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
25	Bldg. F Steam Tunnels	Vapor Barrier Material on FG Pipe Ins. (Black)	3	<1.00% Chrysotile	---
26	Bldg. F Steam Tunnels	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
27	Bldg. F Pool Mechanical Room (Associated with AHU-1)	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
28	Bldg. F Pool Mechanical Room (Associated with AHU-1)	Vibration Cloth (Black)	2	NAD	---



29	Bldg. F Pool Mechanical Room (Associated with AHU-1)	Cloth Fabric to FG Duct Work Ins. (Beige)	2	NAD	---
30	Bldg. F Pool Mechanical Room (Associated with Abandoned AHU)	Vibration Cloth (Black)	2	NAD	---
31	Penthouse Mechanical Room E219A	Mudded Joints to FG Pipe Ins. (Gray)	3	NAD	---
32	Penthouse Mechanical Room E219A	Vapor Barrier Material on FG Pipe Ins. (Black)	3	<1.00% Chrysotile	---
33	Penthouse Mechanical Room E219A	Sealant to FG Pipe Ins. Seams (White)	2	NAD	---
34	Penthouse Mechanical Room E219A	Ceiling Plaster, Gray Only	3	NAD	---
35	Penthouse Mechanical Room E219A	Cloth Fabric to Ductwork FG Ins. (Beige)	2	NAD	---
36	Penthouse Mechanical Room E219A	Gaskets (Green)	2	NAD	---

NAD = No Asbestos Detected

Notes:

1. Quantities are estimations and should be confirmed by the contractor during the pre-abatement walkthrough.
2. Steam tunnels which have standing water must be pumped out and filtered using a filtration system by the contractor which then should be treated as contaminated ACM.

It is our hope that the information provided in this letter has met the project requirements. Thank you for the opportunity to provide you and your staff with our continued services. Please contact me at 212-612-7938 if you have any questions or require any additional information.

Sincerely,

Louis Berger

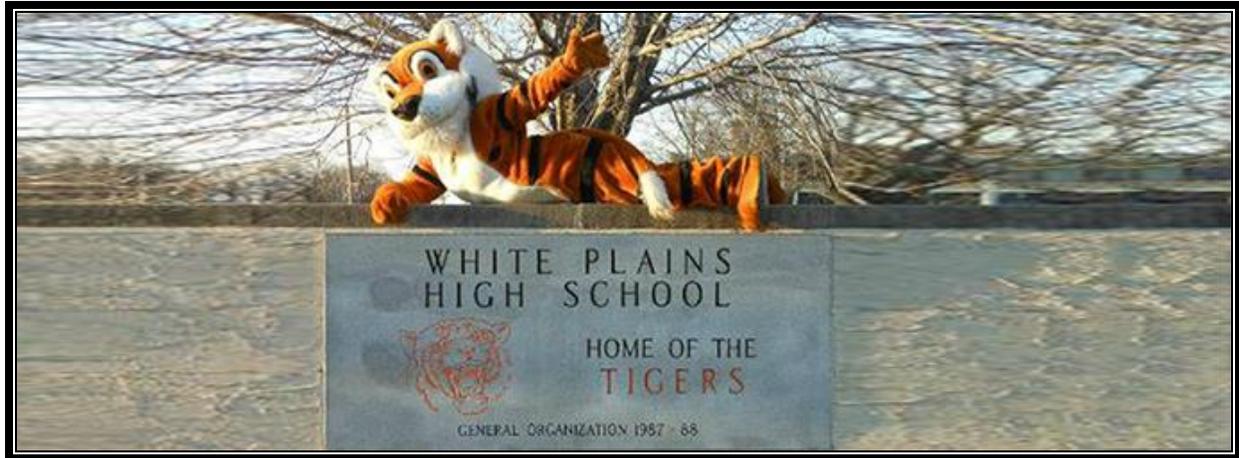
Marvin Luccioni

Senior Environmental Specialist, Emergency Management & IH Services

**FINAL REPORT FOR
ENVIRONMENTAL INSPECTION SERVICES**

Performed at:

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**



Prepared for:

**White Plains City School District
5 Homeside Ave.
White Plains, NY 10605**

Prepared by:



Louis Berger

Louis Berger

**565 Taxter Road, 5th Floor
Elmsford, New York 10523**

Tel. (914) 798-3710

Fax (914) 592-1734

Project No. 2042261.019

Final Submission Date: December 21st, 2017



Louis Berger

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Tel 914 798 3710 Fax 914 592 1734 www.louisberger.com

December 21st, 2017

Mr. Frank Stefanelli
Director of Facilities
White Plains Public Schools
580 North Street
White Plains, NY 10605

**Subject: Final Report for Environmental Inspection Services in Conjunction with the
Roof Replacement at the**

**White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger (Berger) has completed an Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs) inspection at White Plains High School located at 550 North Street, White Plains NY 10605. The inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs). The scope of this inspection is based on the upcoming roof replacement project.

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,

LOUIS BERGER

Craig Napolitano, CHMM
Vice President, Emergency Management & IH Services



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- Appendix A: Asbestos Sample Analysis Results in Tabular Form
- Appendix B: Asbestos Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results
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- Appendix E: Bulk Sample Location Drawings
- Appendix F: Asbestos Containing Material Locations Drawings
- Appendix G: Site Photo Log
- Appendix H: File Search



1.0 EXECUTIVE SUMMARY

Louis Berger (Berger) has performed an asbestos and PCB inspection at White Plains High School , located at 550 North Street, White Plains NY 10605. The intent of this survey was to determine the presence and/or absence of Asbestos-Containing Materials (ACM) and Polychlorinated Biphenyls (PCBs) that may be impacted during the upcoming roof replacement project.

Alex Smolyar and Marvin Luccioni of Louis Berger performed this survey on October 13th & 27th, 2017. Mr. Smolyar has licensing as a New York State Department of Labor (NYSDOL) Asbestos Inspector (Cert #12-07624). Mr. Luccioni has licensing as a New York State Department of Labor (NYSDOL) Asbestos Inspector (Cert #03-11021). The results of the visual inspection and bulk sample analysis determined that the following suspect ACM and PCB materials may be impacted by the upcoming roof replacement project:

A. ASBESTOS-CONTAINING MATERIALS

Analytical results of the bulk samples collected on 10/13 & 27/17 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**

Analytical results from previous LB survey report dated 09/11/13 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**

Analytical results of the bulk samples collected and/or visual examination on 10/13 & 27/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Screed, Gray (Roof C)
- Bottom Membrane, Black (Roof C)
- Felt Paper below Foam, Black (Roof C)
- Felt Paper on top of Foam, Black (Roof C)
- Perlite Insulation, Brown (Roof C)
- Top Membrane, Black (Roof C)
- Pitch Pocket Tar, Black (Roof C)
- Hatch Flashing, Black (Roof C)
- Screed, Gray (Roof A)
- Felt Paper below Foam, Black (Roof A)
- Felt Paper on top of Foam, Black (Roof A)
- Top Membrane, Black (Roof A)
- Screed, Gray (Roofs B, D, E & F)
- Felt Paper on Bottom of Foam, Black (Roofs B, D, E & F)
- Felt Paper on top of Foam, Black (Roofs B, D, E & F)



- Top Insulation Membrane, Black (Roofs B, D, E & F)
- Felt Paper on top of Roofing Membrane, Black (Roofs B, D, E & F)
- Cap Flashing Caulking, Gray (Roofs B, D, E & F)
- Perimeter Base Flashing, Black (Roofs B, D, E & F)
- Drain Flashing, Black (Roofs B, D, E & F)
- Tar on Mechanical Units, Black (Roofs B, D, E & F)
- Tar assoc. with Pitch Pockets at Ladder, Black (Roofs B, D, E & F)
- Mechanical Unit Flashing, Black (Roofs B, D, E & F)
- Hatch Flashing, Black (Roofs B, D, E & F)
- Canvas to FG to Drain Bowls, White (Throughout Interior)
- Cementitious Ceiling, White (Throughout Interior)
- Tectum Ceiling (Throughout Interior)

Analytical results of the bulk samples collected and/or visual examination on LB previous survey report dated 09/11/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Interior Brick Mortar, Grey
- Cinderblock Mortar, Grey
- 1'x1' Pinhole Ceiling Tiles, White
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings Insulation assoc. with Fiberglass Pipe Insulation, Grey
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White
- Joint Compound assoc. with Sheetrock, White
- Caulking at Metal Exhaust Vent Edge, Grey
- Roof Decking (Gym Mech. Room Roof)
- Paper to Foam Insulation (Gym & Gym Mech. Roofs)
- Fiberboard Insulation (Gym & Gym Mech. Roofs)
- Fabric Barrier (Gym & Gym Mech. Roofs)
- Tar on Concrete Deck (Gym Roof)

The following materials as per 2017 AHERA, **did not contain asbestos** based on previous reporting and/or sampling

- 1'x1' Pinhole Pattern Ceiling Tile, White
- 2'x4' Pinhole Ceiling Tiles, White
- 1'x1' Gouged Ceiling Tiles, White
- 2'x4' Small Pinhole Ceiling Tiles, White
- 1'x1' Fissure Ceiling Tiles, White
- 2'x4' (2'x2' Design) Ceiling Tiles, White
- 2'x2' Small Pinhole Ceiling Tiles, White



- Interior Brick Mortar, Gray
- Cinderblock Mortar, Gray
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings assoc. with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White
- Joint Compound assoc. with Sheetrock, White

B. PCB-CONTAINING MATERIALS

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);

- Cap Flashing Caulking, Gray (Roofs B, D, E & F)



2.0 FIELD SURVEY 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 survey, 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 25th, 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 25th 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 25th, 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 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)

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 and PCBs that may be impacted by the upcoming roof replacement project:

- Roofs A through F

A. ASBESTOS-CONTAINING MATERIAL ASSESSMENT

Materials examined during the inspection included:

- Screed, Gray (Roof C)
- Bottom Membrane, Black (Roof C)
- Felt Paper below Foam, Black (Roof C)
- Felt Paper on top of Foam, Black (Roof C)
- Perlite Insulation, Brown (Roof C)
- Top Membrane, Black (Roof C)
- Pitch Pocket Tar, Black (Roof C)
- Hatch Flashing, Black (Roof C)
- Screed, Gray (Roof A)
- Felt Paper below Foam, Black (Roof A)
- Felt Paper on top of Foam, Black (Roof A)
- Top Membrane, Black (Roof A)
- Screed, Gray (Roofs B, D, E & F)
- Felt Paper on Bottom of Foam, Black (Roofs B, D, E & F)
- Felt Paper on top of Foam, Black (Roofs B, D, E & F)
- Top Insulation Membrane, Black (Roofs B, D, E & F)
- Felt Paper on top of Roofing Membrane, Black (Roofs B, D, E & F)
- Cap Flashing Caulking, Gray (Roofs B, D, E & F)
- Perimeter Base Flashing, Black (Roofs B, D, E & F)
- Drain Flashing, Black (Roofs B, D, E & F)
- Tar on Mechanical Units, Black (Roofs B, D, E & F)
- Tar assoc. with Pitch Pockets at Ladder, Black (Roofs B, D, E & F)
- Mechanical Unit Flashing, Black (Roofs B, D, E & F)
- Hatch Flashing, Black (Roofs B, D, E & F)
- Canvas to FG to Drain Bowls, White (Throughout Interior)
- Cementitious Ceiling, White (Throughout Interior)
- Tectum Ceiling (Throughout Interior)

Analytical results of the bulk samples collected on 10/13 & 27/17 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **None**



Analytical results from previous LB survey report dated 09/11/13 indicate that the following materials **contain asbestos** (greater than 1-percent).

- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**

Analytical results of the bulk samples collected and/or visual examination on 10/13 & 27/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Screed, Gray (Roof C)
- Bottom Membrane, Black (Roof C)
- Felt Paper below Foam, Black (Roof C)
- Felt Paper on top of Foam, Black (Roof C)
- Perlite Insulation, Brown (Roof C)
- Top Membrane, Black (Roof C)
- Pitch Pocket Tar, Black (Roof C)
- Hatch Flashing, Black (Roof C)
- Screed, Gray (Roof A)
- Felt Paper below Foam, Black (Roof A)
- Felt Paper on top of Foam, Black (Roof A)
- Top Membrane, Black (Roof A)
- Screed, Gray (Roofs B, D, E & F)
- Felt Paper on Bottom of Foam, Black (Roofs B, D, E & F)
- Felt Paper on top of Foam, Black (Roofs B, D, E & F)
- Top Insulation Membrane, Black (Roofs B, D, E & F)
- Felt Paper on top of Roofing Membrane, Black (Roofs B, D, E & F)
- Cap Flashing Caulking, Gray (Roofs B, D, E & F)
- Perimeter Base Flashing, Black (Roofs B, D, E & F)
- Drain Flashing, Black (Roofs B, D, E & F)
- Tar on Mechanical Units, Black (Roofs B, D, E & F)
- Tar assoc. with Pitch Pockets at Ladder, Black (Roofs B, D, E & F)
- Mechanical Unit Flashing, Black (Roofs B, D, E & F)
- Hatch Flashing, Black (Roofs B, D, E & F)
- Canvas to FG to Drain Bowls, White (Throughout Interior)
- Cementitious Ceiling, White (Throughout Interior)
- Tectum Ceiling (Throughout Interior)

Analytical results of the bulk samples collected and/or visual examination on LB previous survey report dated 09/11/17 indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Interior Brick Mortar, Grey
- Cinderblock Mortar, Grey



- 1'x1' Pinhole Ceiling Tiles, White
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings Insulation assoc. with Fiberglass Pipe Insulation, Grey
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White
- Joint Compound assoc. with Sheetrock, White
- Caulking at Metal Exhaust Vent Edge, Grey
- Roof Decking (Gym Mech. Room Roof)
- Paper to Foam Insulation (Gym & Gym Mech. Roofs)
- Fiberboard Insulation (Gym & Gym Mech. Roofs)
- Fabric Barrier (Gym & Gym Mech. Roofs)
- Tar on Concrete Deck (Gym Roof)

The following materials as per 2017 AHERA, **did not contain asbestos** based on previous reporting and/or sampling

- 1'x1' Pinhole Pattern Ceiling Tile, White
- 2'x4' Pinhole Ceiling Tiles, White
- 1'x1' Gouged Ceiling Tiles, White
- 2'x4' Small Pinhole Ceiling Tiles, White
- 1'x1' Fissure Ceiling Tiles, White
- 2'x4' (2'x2' Design) Ceiling Tiles, White
- 2'x2' Small Pinhole Ceiling Tiles, White
- Interior Brick Mortar, Gray
- Cinderblock Mortar, Gray
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles, Brown
- Fittings assoc. with Fiberglass Pipe Insulation, Gray
- Wrap around Fiberglass Pipe Insulation, Brown
- Sheetrock, White
- Joint Compound assoc. with Sheetrock, White

B. PCB-CONTAINING MATERIAL ASSESSMENT

Materials examined during the Inspection included:

- Cap Flashing Caulking, Gray (Roofs B, D, E & F)

Based upon visual inspection and bulk sample, PCBs have been confirmed to exist in the following materials:

- None



PCB was **not detected** in the following testing combinations within the building via bulk sample analysis:

- Cap Flashing Caulking, Gray (Roofs B, D, E & F)

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 upcoming roof replacement project. The following suspect materials were sampled and analyzed for asbestos content:

4.1 Table 4.1 – Suspect Materials Inspected

HOMOGENOUS AREA	LOCATION	MATERIAL	ASBESTOS CONTENT
Samples collected by LB on 10/13/17			
A	Roof C	Screed, Gray	NAD
B	Roof C	Bottom Membrane, Black	NAD
C	Roof C	Felt Paper below Foam, Black	NAD
D	Roof C	Felt paper on top of Foam, Black	NAD
E	Roof C	Perlite Insulation, Brown	NAD
F	Roof C	Top Membrane, Black	NAD
G	Roof C	Pitch Pocket Tar, Black	NAD
H	Roof C	Hatch Flashing, Black	NAD
I	Roof A	Screed, Gray	NAD
J	Roof A	Felt Paper below Foam, Black	NAD
K	Roof A	Felt Paper on top of Foam, Black	NAD
L	Roof A	Top Membrane, Black	NAD
M	Roofs B, D, E & F	Screed, Gray	NAD
N	Roofs B, D, E & F	Felt Paper on bottom of Foam, Black	NAD
O	Roofs B, D, E & F	Felt Paper on top of Foam, Black	NAD



P	Roofs B, D, E & F	Top Insulation Membrane, Black	NAD
Q	Roofs B, D, E & F	Felt Paper on top of Roofing Membrane, Black	NAD
R	Roofs B, D, E & F	Cap Flashing Caulking, Gray	NAD
S	Roofs B, D, E & F	Perimeter Base Flashing, Black	<1% Chrysotile
T	Roofs B, D, E & F	Drain Flashing, Black	NAD
U	Roofs B, D, E & F	Tar on Mechanical Units, Black	<1% Chrysotile
V	Roofs B, D, E & F	Tar assoc. with Pitch Pockets at Ladder, Black	NAD
W	Roofs B, D, E & F	Mechanical Unit Flashing, Black	NAD
X	Roofs B, D, E & F	Hatch Flashing, Black	NAD
Samples collected by LB on 10/27/17			
01	Throughout Interior	Canvas to FG to Drain Bowls, White	NAD
02	Throughout Interior	Cementitious Ceiling, White	NAD
03	Throughout Interior	Tectum Ceiling,	NAD

Bold = Positive for ACM

NAD = No Asbestos Detected

NA/PS = Not analyzed/ positive sample

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
Gym Mechanical Roof	Caulking at Flashing	30 LF (5 SF)	Non-friable	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



4.3 SAMPLE ANALYSIS TABLE

Laboratory analysis results, in tabular form, are included in Appendix A.

B. PCB-CONTAINING MATERIALS ASSESSMENT

The PCB Inspection involved a thorough visual examination of all areas that may be impacted by the upcoming roof replacement project. The following suspect materials were sampled and analyzed for PCB content (greater than 50 PPM):

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
No PCB was found during this inspection.			

Bold = Positive for PCB ND = No PCB Detected

5.0 AREAS NOT ACCESSIBLE

During the survey the following areas were not accessible:

Void Spaces within Interior Walls/Ceilings: No destructive sampling was performed on concealed spaces in walls to access plenum, chases etc. It should be assumed that asbestos and PCB containing materials 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 containing materials 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 our inspection effort that may be impacted as part of the upcoming roof replacement project. These materials, reported in Section 3.0 of this report, may require complete removal prior to the start of the project. No PCBs were found.

7.0 REPORT CERTIFICATIONS

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of Berger’s efforts for the environmental inspection work for the upcoming roof replacement project.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of Berger’s site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which Berger is unaware and has not had the opportunity to evaluate.



The conclusions presented in this report are professional opinions solely upon Berger'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:

Marvin Luccioni
Vice President,
Emergency Management & IH Services

Reviewed by:

Craig Napolitano, CHMM
Vice President,
Emergency Management & IH Services



**APPENDIX A:
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM**



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APPENDIX A SAMPLE ANALYSIS RESULTS IN TABULAR FORM WHITE PALINS HIGH SCHOOL 550 NORTH STREET, WHITE PLAINS NY 10605 LB PROJECT NO.: 2042261.019

Homogeneous Area No.	Sample No.	Material	Location	PLM Result	TEM Result
Samples collected by LB on 10/13/17					
A	01	Screed, Gray	Roof C	NAD	N/A
A	02	Screed, Gray	Roof C	NAD	N/A
B	03	Bottom Membrane, Black	Roof C	NAD	NAD
B	04	Bottom Membrane, Black	Roof C	NAD	NAD
C	05	Felt Paper below Foam, Black	Roof C	NAD	NAD
C	06	Felt Paper below Foam, Black	Roof C	NAD	NAD
D	07	Felt paper on top of Foam, Black	Roof C	NAD	NAD
D	08	Felt paper on top of Foam, Black	Roof C	NAD	NAD
E	09	Perlite Insulation, Brown	Roof C	NAD	N/A
E	10	Perlite Insulation, Brown	Roof C	NAD	N/A
F	11	Top Membrane, Black	Roof C	NAD	NAD
F	12	Top Membrane, Black	Roof C	NAD	NAD
G	13	Pitch Pocket Tar, Black	Roof C	NAD	NAD
G	14	Pitch Pocket Tar, Black	Roof C	NAD	NAD
H	15	Hatch Flashing, Black	Roof C	NAD	NAD
H	16	Hatch Flashing, Black	Roof C	NAD	NAD



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Homogeneous Area No.	Sample No.	Material	Location	PLM Result	TEM Result
I	17	Screed, Gray	Roof A	NAD	N/A
I	18	Screed, Gray	Roof A	NAD	N/A
J	19	Felt Paper below Foam, Black	Roof A	NAD	NAD
J	20	Felt Paper below Foam, Black	Roof A	NAD	NAD
K	21	Felt Paper on top of Foam, Black	Roof A	NAD	NAD
K	22	Felt Paper on top of Foam, Black	Roof A	NAD	NAD
L	23	Top Membrane, Black	Roof A	NAD	NAD
L	24	Top Membrane, Black	Roof A	NAD	NAD
M	25	Screed, Gray	Roof D	NAD	N/A
M	26	Screed, Gray	Roof B	NAD	N/A
N	27	Felt Paper on bottom of Foam, Black	Roof D	NAD	NAD
N	28	Felt Paper on bottom of Foam, Black	Roof B	NAD	NAD
O	29	Felt Paper on top of Foam, Black	Roof D	NAD	NAD
O	30	Felt Paper on top of Foam, Black	Roof B	NAD	NAD
P	31	Top Insulation Membrane, Black	Roof D	NAD	NAD
P	32	Top Insulation Membrane, Black	Roof B	NAD	NAD
Q	33	Felt Paper on top of Roofing Membrane, Black	Roof D	NAD	NAD
Q	34	Felt Paper on top of Roofing Membrane, Black	Roof B	NAD	NAD
R	35	Cap Flashing Caulking, Gray	Roof B	NAD	NAD
R	36	Cap Flashing Caulking, Gray	Roof B	NAD	NAD
S	37	Perimeter Base Flashing, Black	Roof B	NAD	<1% Chrysotile
S	38	Perimeter Base Flashing, Black	Roof D	NAD	<1% Chrysotile



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Homogeneous Area No.	Sample No.	Material	Location	PLM Result	TEM Result
T	39	Drain Flashing, Black	Roof B	NAD	NAD
T	40	Drain Flashing, Black	Roof D	NAD	NAD
U	41	Tar on Mechanical Units, Black	Roof D	NAD	NAD
U	42	Tar on Mechanical Units, Black	Roof D	NAD	NAD
V	43	Tar assoc. with Pitch Pockets at Ladder, Black	Roof D	NAD	NAD
V	44	Tar assoc. with Pitch Pockets at Ladder, Black	Roof F	NAD	NAD
W	45	Mechanical Unit Flashing, Black	Roof D	NAD	NAD
W	46	Mechanical Unit Flashing, Black	Roof E	NAD	NAD
X	47	Hatch Flashing, Black	Roof B	NAD	NAD
X	48	Hatch Flashing, Black	Roof D	NAD	NAD
Samples collected by LB on 10/27/17					
01	0	Canvas to FG to Drain Bowls, White	Mech Room near Pool	NAD	N/A
01	02	Canvas to FG to Drain Bowls, White	Mech Room near Pool	NAD	N/A
02	03	Cementitious Ceiling, White	Mech Room near Pool	NAD	N/A
02	04	Cementitious Ceiling, White	Mech Room near Pool	NAD	N/A
	05	Cementitious Ceiling, White	Mech Room near Pool	NAD	N/A
03	06	Tectum Ceiling,	Above Gym	NAD	NAD
03	07	Tectum Ceiling,	Above Gym	NAD	NAD

Bold = Contains Asbestos

NAD = No Asbestos Detected

N/A = Not Applicable

NA/PS = Not Analyzed, Positive Stop

^(v) = >10.0% Vermiculite

FINAL REPORT OF ENVIRONMENTAL SERVICES

Performed at:

**WHITE PLAINS HIGH SCHOOL
550 NORTH STREET
WHITE PLAINS, NY 10605**



Prepared by:



The Louis Berger Group, Inc.

**565 Taxter Road, 5th Floor
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Project No. 3000825

Submission Date: September 11, 2013



The Louis Berger Group Inc.

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September 11, 2013

Mr. Frank Stefanelli
Director of Facilities
White Plains City School District
508 North Street
White Plains, NY 10605

**Subject: Final Report of Environmental Services
White Plains High School
550 North Street
White Plains, NY 10605**

Dear Mr. Stefanelli:

Louis Berger Group (LBG) has completed a material Inspection at White Plains High School located at 550 North Street, White Plains, NY 10605. The Inspection included visual observation, material sampling, and laboratory sample analysis of suspect Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) associated with proposed renovations.

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,

THE LOUIS BERGER GROUP (LBG)

Craig Napolitano, CHMM
Director, Industrial Hygiene & Hazmat 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

Appendix E: PCB Bulk Sample Field Data Sheets with Chain of Custody & Laboratory Results

Appendix F: Company License, Personnel Certifications and Laboratory Accreditations

Appendix G: Photographic Documentation



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1.0 EXECUTIVE SUMMARY

Louis Berger Group, Inc (LBG) has performed a renovation specific material Inspection for the presence or absence of Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) at White Plains High School located at 550 North Street, White Plains, NY 10605. The intent of this Inspection was to screen for Asbestos-Containing Materials (ACM), and Polychlorinated Biphenyls (PCBs) that may be impacted during the proposed renovations.

Michael Gelfand and Dmitri Kirnossenko of LBG performed this Inspection on July 24, 2013, and Andrew Cheskin performed an additional inspection on September 4, 2013. Mr. Kirnossenko has New York State Department of Labor (NYSDOL) Asbestos Inspector License (Cert# 07-01720). Mr. Gelfand has NYSDOL Asbestos Inspector License (Cert# 98-17113). Mr. Cheskin has NYSDOL Asbestos Inspector License (Cert# 05-04280). The results of the visual inspection and bulk sample analysis determined that the following suspect ACM and PCB materials may be impacted by the renovation project:

A. ASBESTOS-CONTAINING MATERIAL

Analytical results of the bulk samples collected by Berger indicate that the following materials **contain asbestos** (greater than 1-percent).

- **9"x9" Beige Floor Tiles (Auditorium)**
- **Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)**
- **Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)**
- **Exterior Metal Wall Panel Frame Caulking (Pool Building)**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

Analytical results of the bulk samples collected indicate that the following materials **did not contain asbestos** (less than 1-percent);

- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)



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- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

The following materials were **assumed to contain asbestos**:

- **9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C**
- **9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor**
- **Ceiling Scratch Coat, Pool Building**
- **Ceiling Tectum Tiles, North and South Gym**
- **Built-up Roofing on Gym Roof**
- **Mechanical Equipment Flashing on Gym Roof**

B. 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);

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)



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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 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 25th, 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 25th 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



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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 25th, 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 101048-9)
- New York State Environmental Laboratory Approval Program (Lab No. 11506)
- American Industrial Hygiene Association Accredited Laboratory (Lab No. 102581)

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



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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.



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3.0 INSPECTION SCOPE AND MATERIAL ASSESSMENT

The areas inspected for suspect ACM and PCB materials that may be impacted by the proposed renovations. Locations surveyed include:

- Building Exterior
- Hallways
- Rooms
- Auditorium
- Gymnasiums
- Pool
- Gym Roof, Gym Mechanical Room Roof

A. ASBESTOS-CONTAINING MATERIAL

Materials examined during the Berger Inspection included:

- 9"x9" Beige Floor Tiles (Auditorium)
- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg. A Gas Room Exit)
- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- 9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C



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- 9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor
- Ceiling Scratch Coat, Pool Building
- Ceiling Tectum Tiles, North and South Gym
- Roof Decking
- Paper to Foam Insulation
- Fiberboard Insulation
- Fabric Barrier
- Tar on Concrete Deck

Based upon visual inspection and bulk sample analysis asbestos has been confirmed to exist in the following materials:

- **9"x9" Beige Floor Tiles (Auditorium)**
- **Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)**
- **Exterior metal Wall Panel Glazing (type 2) & Contaminated type 1(Pool Building)**
- **Exterior Metal Wall Panel Frame Caulking (Pool Building)**
- **Caulking at Flashing on Gym Mechanical Roof (Gym Roof)**
- **Exterior Door Frame Caulking (Bldg. A Gas Room Exit)**

Asbestos was **not detected** in the following materials via PLM and/or TEM analysis:

- Baseboard Glue (brown)
- Baseboard Molding (brown)
- Mastic assoc. with 9"x9" Floor Tiles (black)
- 2'x4' Ceiling Tiles (grey)
- Wall Ceramic Tile Grout (white)
- Floor Ceramic Tile Grout (brown)
- Glazing at Entrance Aluminum Framing/Panels (white)
- Interior Brick Mortar (grey)
- Cinderblock Mortar (grey)
- 1'x1' Pinhole Ceiling Tiles (white)
- Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)
- Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)
- Wrap around Fiberglass Pipe Insulation (brown)
- Sheetrock Walls (white)
- Joint Compound assoc. with Sheetrock Walls (white)
- Cinderblock Wall Mortar (grey)
- Caulking at Metal Exhaust Vent Edges (grey)
- Roof Decking, Gym Mechanical Room Roof
- Paper to Foam Insulation, Gym Mechanical Room Roof and Gym Roof
- Fiberboard Insulation, Gym Mechanical Room Roof and Gym Roof



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- Fabric Barrier, Gym Mechanical Room Roof and Gym Roof
- Tar on Concrete Deck, Gym Roof

The following materials were **assumed to contain asbestos**:

- **9"x9" Beige Floor Tiles & Assoc. Mastic, throughout Rooms in Bldgs. A, B, C**
- **9"x9" Beige Floor Tiles with White/Black Lines & assoc. mastic, Pool Connection Corridor**
- **Ceiling Scratch Coat, Pool Building**
- **Ceiling Tectum Tiles, North and South Gym**

B. PCB-CONTAINING MATERIAL

Materials examined during the Inspection included:

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)

Based upon visual inspection and bulk sample, PCBs have been confirmed to exist in the following materials:

- **None**

PCB was **not detected** in the following testing combinations within the building via bulk sample analysis:

- Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (Pool Building)
- Exterior metal Wall Panel Glazing (type 1) (Pool Building)
- Exterior metal Wall Panel Glazing (type 2) (Pool Building)
- Exterior Metal Wall Panel Frame Caulking (Pool Building)
- Caulking at Metal Exhaust Vent Edges (Gym Roof)
- Caulking at Flashing on Gym Mechanical Roof (Gym Roof)
- Exterior Door Frame Caulking (Bldg A Gas Room Exit)
- Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey) (Bldgs. A, B, C)



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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 renovations. The following suspect materials were sampled and analyzed for asbestos content by Berger:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
A	Auditorium	Baseboard Glue (brown)	NAD
B	Auditorium	Baseboard Molding (brown)	NAD
C	Auditorium	Mastic assoc. with 9"x9" Floor Tiles (black)	NAD
D	Auditorium	9"x9" Beige Floor Tiles	ACM
E	Pool Connection Corridor	2'x4' Ceiling Tiles (grey)	NAD
F	Pool Connection Corridor	Baseboard Glue (brown)	NAD
G	Pool Connection Corridor	Baseboard (brown)	NAD
H	Pool Bldg.	Wall Ceramic Tile Grout (white)	NAD
I	Pool Bldg.	Floor Ceramic Tile Grout (brown)	NAD
J	Pool Bldg.	Glazing at Entrance Aluminum Framing/Panels (white)	NAD
K	Pool Bldg.	Interior Brick Mortar (grey)	NAD
L	Pool Bldg.	Interior Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	ACM
M	Pool Bldg.	Exterior metal Wall Panel Glazing (type 1) (grey)	Contaminated ACM
N	Pool Bldg.	Exterior metal Wall Panel Glazing (type 2) (light grey)	ACM
O	Pool Bldg.	Exterior Metal Wall Panel Frame Caulking (grey)	ACM
P	Auditorium	Cinderblock Mortar (grey)	NAD
Q	1 st Floor Rooms	1'x1' Pinhole Ceiling Tiles (white)	NAD
R	1 st Floor Rooms	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
S	2 nd Floor Rooms	1'x1' Pinhole Ceiling Tiles (white)	NAD
T	2 nd Floor Rooms	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
U	1 st Floor Hallways	1'x1' Pinhole Ceiling Tiles (white)	NAD
V	1 st Floor Hallways	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD
W	2 nd Floor Hallways	1'x1' Pinhole Ceiling Tiles (white)	NAD
X	2 nd Floor Hallways	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD



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HOMOGENOUS MATERIAL	LOCATION	MATERIAL	ASBESTOS CONTENT
Y	Bldgs. A, B, C 1 st Floor	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD
Z	Bldgs. A, B, C 2 nd Floor	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD
A1	Bldgs. A, B, C	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD
B1	Bldgs. A, B, C	Wrap around Fiberglass Pipe Insulation (brown)	NAD
C1	Bldgs. A, B, C	Cinderblock Mortar (grey)	NAD
D1	Bldgs. A, B, C	Sheetrock Walls (white)	NAD
E1	Bldgs. A, B, C	Joint Compound assoc. with Sheetrock Walls (white)	NAD
F1	Gym Bldg.	Cinderblock Wall Mortar (grey)	NAD
G1	Gym Roof	Caulking at Metal Exhaust Vent Edges (grey)	NAD
H1	Gym Roof	Caulking at Flashing on Gym Mechanical Roof (black)	ACM
I1	Bldg. A Gas Room Exit (NW corner of Bldg.)	Exterior Door Frame Caulking (grey)	ACM
1	Gym Mechanical Room Roof	Roof Decking	NAD
2	Gym Mechanical Room Roof	Paper to Foam Insulation	NAD
3	Gym Mechanical Room Roof	Fiberboard Insulation	NAD
4	Gym Mechanical Room Roof	Fabric Barrier	NAD
5	Gym Roof	Tar on Concrete Deck	NAD
6	Gym Roof	Paper to Foam Insulation	NAD
7	Gym Roof	Fabric Barrier	NAD

Bold = Positive for ACM NAD = No Asbestos Detected

B. PCB-CONTAINING MATERIAL

The PCB Inspection involved a thorough visual examination of all areas that may be impacted by the proposed renovations. The following suspect materials were tested for PCB content:

HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
B	Pool Building	Interior Vertical Expansion Joint Caulking at Brick Curtain Walls	ND
C	Pool Building	Exterior metal Wall Panel Glazing (type 1)	ND
D	Pool Building	Exterior metal Wall Panel Glazing (type 2)	ND



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HOMOGENOUS MATERIAL	LOCATION	MATERIAL	PCB CONTENT (PPM)
E	Pool Building	Exterior Metal Wall Panel Frame Caulking	ND
F	Bldgs. A, B, C	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	
G	Gym Roof	Caulking at Metal Exhaust Vent Edges	ND
H	Gym Roof	Caulking at Flashing on Gym Mechanical Roof	ND
I	Bldg. A Gas Room Exit (NW corner of Bldg.)	Exterior Door Frame Caulking	ND

Bold = Positive for PCB ND = No PCB Detected

4.2 SAMPLE ANALYSIS TABLE

ACM laboratory analysis results are included in Appendix A.

5.0 AREAS NOT ACCESSIBLE

During the Inspection the following areas were not accessible:

- Void Spaces within Walls: No destructive sampling was performed on concealed spaces in walls to access plenum, chases etc. 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.
- Pool Ceiling

6.0 CONCLUSIONS AND RECOMMENDATIONS

ACM materials have been identified in this inspection that may be impacted as part of the renovations at the White Plains High School. These materials, reported in Section 3.0 of this report, may require complete removal prior to the start of the renovation project. No PCBs were identified during this Inspection.

The ACM & PCB Inspection was conducted at the request of White Plains City School District for the proposed renovations, as provided by email from H2M Senior Project Architect. Any change in the scope of work will require further investigation to accurately classify any additional ACM or PCBs resulting from the modified or updated scope of work.



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7.0 REPORT CERTIFICATIONS

This report, and the supporting data, findings, conclusions, opinions, and recommendations it contains represent the result of LBG's efforts for the environmental inspection work for the White Plains High School.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of LBG's site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which LBG is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions solely upon LBG'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:

Michael Gelfand
NYS DOL Inspector

Reviewed by:

Craig Napolitano, CHMM
Director, Industrial
Hygiene & Hazmat Services



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**APPENDIX A:
ASBESTOS SAMPLE ANALYSIS RESULTS IN TABULAR FORM**



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APPENDIX A SAMPLE ANALYSIS RESULTS IN TABULAR FORM WHITE PLAINS HIGH SCHOOL 550 NORTH STREET WHITE PLAINS, NY 10605

Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
A	1	Auditorium, by Entrance	Baseboard Glue (brown)	NAD	NAD
A	2	Auditorium, by Stage	Baseboard Glue (brown)	NAD	NAD
B	3	Auditorium, by Entrance	Baseboard Molding (brown)	NAD	NAD
B	4	Auditorium, by Stage	Baseboard Molding (brown)	NAD	NAD
C	5	Auditorium, by Entrance	Mastic assoc. with 9"x9" Floor Tiles (black)	NAD	NAD
C	6	Auditorium, middle	Mastic assoc. with 9"x9" Floor Tiles (black)	<1% Chrysotile	<1% Chrysotile
D	7	Auditorium, by Entrance	9"x9" Beige Floor Tiles	2.4% Chrysotile	NA/PS
D	8	Auditorium, middle	9"x9" Beige Floor Tiles	NA/PS	NA/PS
E	9	Pool Connection Corridor, south	2'x4' Ceiling Tiles (grey)	NAD	NAD
E	10	Pool Connection Corridor, north	2'x4' Ceiling Tiles (grey)	NAD	NAD
F	11	Pool Connection Corridor, south	Baseboard Glue (brown)	NAD	NAD
F	12	Pool Connection Corridor, north	Baseboard Glue (brown)	NAD	NAD
G	13	Pool Connection Corridor, south	Baseboard (brown)	NAD	NAD
G	14	Pool Connection Corridor, north	Baseboard (brown)	NAD	NAD
H	15	Pool Bldg., south	Wall Ceramic Tile Grout (white)	NAD	N/A
H	16	Pool Bldg., north	Wall Ceramic Tile Grout (white)	NAD	N/A
I	17	Pool Bldg., south	Floor Ceramic Tile Grout (brown)	NAD	N/A

Bold = Positive for ACM
NAD = No Asbestos Detected

N/A = Not Applicable
NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
I	18	Pool Bldg., north	Floor Ceramic Tile Grout (brown)	NAD	N/A
J	19	Pool Bldg., Entrance Wall	Glazing at Entrance Aluminum Framing/Panels (white)	NAD	NAD
J	20	Pool Bldg., Entrance Wall	Glazing at Entrance Aluminum Framing/Panels (white)	NAD	NAD
K	21	Pool Bldg., north	Interior Brick Mortar (grey)	NAD	N/A
K	22	Pool Bldg., south	Interior Brick Mortar (grey)	NAD	N/A
L	23	Pool Bldg., SW corner	Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	1.4% Chrysotile	NA/PS
L	24	Pool Bldg., NW corner	Vertical Expansion Joint Caulking at Brick Curtain Walls (grey)	NA/PS	NA/PS
M	25	Pool Bldg. West Wall, NW side	Exterior metal Wall Panel Glazing (type 1) (grey)	NAD	NAD
M	26	Pool Bldg. West Wall, SW side	Exterior metal Wall Panel Glazing (type 1) (grey)	NAD	NAD
N	27	Pool Bldg. West Wall, NW side	Exterior metal Wall Panel Glazing (type 2) (light grey)	1.2% Chrysotile	NA/PS
N	28	Pool Bldg. West Wall, SW side	Exterior metal Wall Panel Glazing (type 2) (light grey)	NA/PS	NA/PS
O	29	Pool Bldg. West Wall, NW side	Exterior Metal Wall Panel Frame Caulking (grey)	1.2% Chrysotile	NA/PS
O	30	Pool Bldg. West Wall, SW side	Exterior Metal Wall Panel Frame Caulking (grey)	NA/PS	NA/PS
P	31	Auditorium, SE side	Cinderblock Mortar (grey)	NAD	N/A
P	32	Auditorium, SW side	Cinderblock Mortar (grey)	NAD	N/A
Q	33	Bldg A 1 st Floor - Rm. A122	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
Q	34	Bldg. C 1 st Floor - Rm. C145	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
R	35	Bldg A 1 st Floor - Rm. A122	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
R	36	Bldg. C 1 st Floor – Rm. C145	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
S	37	Bldg A 2 nd Floor - Rm. A221	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
S	38	Bldg. B 2 nd Floor – Rm. B212	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
T	39	Bldg A 2 nd Floor - Rm. A221	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
T	40	Bldg. B 2 nd Floor – Rm. B212	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
U	41	Bldg. A 1 st Floor – Hallway at Rm. A122	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
U	42	Bldg. C 1 st Floor – Hallway at Rm. C145	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
V	43	Bldg. A 1 st Floor – Hallway at Rm. A122	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
V	44	Bldg. C 1 st Floor – Hallway at Rm. C145	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
W	45	Bldg A 2 nd Floor – Hallway at Rm. A221	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
W	46	Bldg. B 2 nd Floor – Hallway at Rm. B212	1'x1' Pinhole Ceiling Tiles (white)	NAD	NAD
X	47	Bldg A 2 nd Floor – Hallway at Rm. A221	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
X	48	Bldg. B 2 nd Floor – Hallway at Rm. B212	Mastic assoc. with 1'x1' Pinhole Ceiling Tiles (brown)	NAD	NAD
Y	49	Bldg A 1 st Floor - Rm. A122	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD	NAD
Y	50	Bldg. C 1 st Floor – Rm. C145	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	NAD	<1% Chrysotile
Z	51	Bldg A 2 nd Floor - Rm. A221	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	<1% Chrysotile	<1% Chrysotile
Z	52	Bldg. B 2 nd Floor – Rm. B212	Glazing at Clerestory Glass Panels bet. Rooms and Hallways (grey)	<1% Chrysotile	<1% Chrysotile

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
A1	53	Bldg. A 1 st Floor – Hallway at Rm. A125	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD	N/A
A1	54	Bldg. A 1 st Floor – Hallway at Rm. A101	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD	N/A
A1	55	Bldg. A 1 st Floor – Boiler Room A013	Fittings Insulation assoc. with Fiberglass Pipe Insulation (grey)	NAD	N/A
B1	56	Bldg. A 1 st Floor – Hallway at Rm. A125	Wrap around Fiberglass Pipe Insulation (brown)	NAD	N/A
B1	57	Bldg. A 1 st Floor – Hallway at Rm. A101	Wrap around Fiberglass Pipe Insulation (brown)	NAD	N/A
B1	58	Bldg. A 1 st Floor – Boiler Room A013	Wrap around Fiberglass Pipe Insulation (brown)	NAD	N/A
C1	59	Bldg A, 1 st Floor Stair AS2	Cinderblock Mortar (grey)	NAD	N/A
C1	60	Bldg. C, 1 st Floor Stair C31	Cinderblock Mortar (grey)	NAD	N/A
D1	61	Bldg. C 1 st Floor Hallway	Sheetrock Walls (white)	NAD	N/A
D1	62	Bldg. C 1 st Floor Hallway	Sheetrock Walls (white)	NAD	N/A
E1	63	Bldg. C 1 st Floor Hallway	Joint Compound assoc. with Sheetrock Walls (white)	NAD	N/A
E1	64	Bldg. C 1 st Floor Hallway	Joint Compound assoc. with Sheetrock Walls (white)	NAD	N/A
F1	65	Gyms Bldg. – South Gym	Cinderblock Wall Mortar (grey)	NAD	N/A
F1	66	Gyms Bldg. – North Gym	Cinderblock Wall Mortar (grey)	NAD	N/A
G1	67	South Gym Roof	Caulking at Metal Exhaust Vent Edges (grey)	NAD	NAD
G1	68	North Gym Roof	Caulking at Metal Exhaust Vent Edges (grey)	NAD	NAD
H1	69	Gym Roof – East side	Caulking at Flashing on Gym Mechanical Roof (black)	1.2% Chrysotile	NA/PS

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample



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Homogeneous Area No.	Sample No.	Location	Material	PLM Result	TEM Result
H1	70	Gym Roof - West side	Caulking at Flashing on Gym Mechanical Roof (black)	NA/PS	NA/PS
I1	71	Bldg A Gas Room Exit, NW corner	Exterior Door Frame Caulking (grey)	1.2% Chrysotile	NA/PS
I1	72	Bldg A Gas Room Exit, NW corner	Exterior Door Frame Caulking (grey)	NA/PS	NA/PS
1	1A	Gym Mechanical Room Roof	Roof Decking	NAD	N/A
1	1B	Gym Mechanical Room Roof	Roof Decking	NAD	N/A
2	2A	Gym Mechanical Room Roof	Paper to Foam Insulation	NAD	N/A
2	2B	Gym Mechanical Room Roof	Paper to Foam Insulation	NAD	N/A
3	3A	Gym Mechanical Room Roof	Fiberboard Insulation	NAD	N/A
3	3B	Gym Mechanical Room Roof	Fiberboard Insulation	NAD	N/A
4	4A	Gym Mechanical Room Roof	Fabric Barrier	NAD	N/A
4	4B	Gym Mechanical Room Roof	Fabric Barrier	NAD	N/A
5	5A	Main Gym Roof	Tar on Concrete Deck	NAD	NAD
5	5B	Lower Gym Roof	Tar on Concrete Deck	NAD	NAD
6	6A	Main Gym Roof	Paper to Foam Insulation	NAD	N/A
6	6B	Lower Gym Roof	Paper to Foam Insulation	NAD	N/A
7	7A	Main Gym Roof	Fabric Barrier	NAD	N/A
7	7B	Lower Gym Roof	Fabric Barrier	NAD	N/A

Bold = Positive for ACM
 NAD = No Asbestos Detected

N/A = Not Applicable
 NA/PS = Not analyzed/ positive sample